

Sir
George Williams
University

Undergraduate
Calendar

1974

75

CALENDAR 1974

JANUARY						
S	M	T	W	T	F	S
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6	7	8	9	10	11	12
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Undergraduate Programmes 1974-75

Sir George Williams University
1455 de Maisonneuve West
Montreal, Quebec H3G 1M8

879 5995

Concordia University

At the time this calendar went to press the Government of Quebec had not yet taken the steps required to turn Concordia University into a legal reality. It was therefore decided that Sir George Williams University and Loyola College would each issue its own undergraduate calendar for the 1974-75 academic year. It seems likely that Concordia will be fully established as a new university before students actually enroll on its two campuses in the fall of 1974. Opportunities for use of their combined resources, whether through joint programmes or greater access to the other campus, will be announced as they are developed.

This calendar has been prepared months in advance of the academic year 1974-75 and information contained herein is subject to change. For information concerning class schedules, contact the Records Office, Room 107, Norris Building, 1435 Drummond Street. For information concerning graduate programmes contact the Graduate Studies Office, Room S205, 2145 Mackay Street.

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Sir George Williams University

Sir George Williams University is located in downtown Montreal. The Hall Building, opened in 1966, is at 1455 de Maisonneuve Boulevard West; the Norris Building is at 1435 Drummond Street. The university also occupies a number of smaller buildings and rented premises in the immediate neighbourhood.

Sir George Williams University offers undergraduate degrees in the four faculties of Arts, Science, Commerce and Administration and Engineering.

Present graduate degrees are Master of Arts, Master of Science, Master in Engineering, Master of Business Administration and Master in Teaching Mathematics, as well as Doctorates in Chemistry, Economics, Engineering, History, Humanities, Physics and Religion.

Post-graduate diploma programmes are available in Art Education, Early Childhood Education, Institutional Administration and Instructional Technology.

In the 1973-74 academic year enrolment was 5409 collegial-level and undergraduate students in the day division, 6785 evening undergraduate students, 2212 evening partial students, and 1520 graduate students. In 1971-72 the university introduced in both day and evening divisions a new undergraduate programme usually of three years' duration. Entry normally requires completion of the Quebec CEGEP programme or the equivalent. However there exists a special preparatory programme for evening division students who have not graduated from the collegial level. To be admitted to this programme candidates must be 21 years of age within the calendar year in which they enter the programme. A birth certificate or other acceptable proof of age must be submitted in support of every application for admission.

Day and evening undergraduate degrees are equivalent. The programmes are the same, and are given largely by the same faculty.

Laboratories

The university has approximately 100 laboratories with modern equipment for teaching and research in Biology, Chemistry, Physics, Engineering, Statistics, Psychology, Geography and Languages.

Computer Centre

The main installation in the Computer Centre is a Control Data Corporation 6200 digital computer, modern, time-sharing equipment. The centre itself is located outside the university

but there are remote terminals in each of the main university buildings. In addition, auxiliary computers and electronic calculators are available for the use of faculty and students. The centre maintains two statistics laboratories.

Libraries

The Sir George Williams University Library collection contains some 450,000 books, 100,000 periodicals and government publications and 200,000 items in microform and audio-visual materials. The collection is expanding.

The main library containing the bulk of the collection is located in the Norris Building. The Science and Engineering library is situated on the 10th floor of the Hall Building.

The thirty-five professional librarians, aided by the supporting staff, provide extensive reference and circulation services. A library orientation programme is actively involved with students, helping them to use the facilities more effectively.

Art Galleries

Sir George William University has three galleries on the mezzanine floor as well as open display areas. The galleries house an extensive collection of Canadian art including paintings, drawings, graphics and sculpture. There is a continuous programme of outside exhibitions and shows by students and faculty members. The galleries are also used for concerts, poetry readings, guest lectures and other cultural events.

Theatre and Studios

The Douglass Burns Clarke Theatre, located in the Hall Building, is the home of the Theatre Arts Section. Student and other productions are given regularly through the academic year.

Studios for work in Fine and Applied Art are also located in the Hall Building.

Centre for Instructional Technology

Audio-visual facilities under the control of the Centre for Instructional Technology include a professional television studio, a closed circuit television and distribution network serving all class areas of the Hall and Norris Buildings, and learning laboratories with carrel study facilities for use with media presentations.

The Centre has a research and development wing and collaborates with the university's Department of Education in technical support for the programmes in instructional technology.

University Bookstore

Books and supplies, including art materials, may be bought at the University Bookstore, located on the mezzanine of the Hall Building.

In the beginning of each academic year required texts are available from an auxiliary sales location in Birks Auditorium on the main floor of the Norris Building.

Liaison Office

The university has a Liaison Office amongst whose duties is an information service for all potential students.

The liaison personnel will help all students who wish to visit the university and tour the facilities, listen to lectures or meet with a departmental advisor. The office will also provide potential students with information materials that they may require.

University calendars may be requested through this office by individuals or groups.

The office is located in the Norris Building, Room N-211.

Liaison Officer: Ken Battersby 879-4233

Assistant Liaison Officer: Eleanor Bentley 879-8429

Secretary: Liana Howes 879-4233

Calendar of Events

1974

March	Friday, March 1 Friday, March 1	Last day for applications - Day division (1974-75) Course Selection (Pre-registration 1974-75) begins
April	Monday, April 15	Last day for applications - Evening Summer session
May	Monday, May 27 Friday, May 31	Registration begins - Evening summer session Registration closes - Evening summer session
June	Monday, June 3 Monday, June 3 Friday, June 7, 4:30 p.m. Friday, June 7, 5:00 p.m. Thursday, June 13 Sunday, June 16 Monday, June 24 Friday, June 28	Classes begin - Evening summer session Evening course change period begins Evening course change period ends Last day for financial adjustments to contracts (Summer session) Last day for supplemental examination applications Spring Convocation St. Jean Baptiste Day Last day for submission of Pre-registration form
July	Monday, July 1 Wednesday, July 3 Wednesday July 17 Saturday, July 28	Dominion Day Last day for academic withdrawal - Evening summer session Supplemental examinations begin Supplemental examinations end
August	Thursday, August 2 Monday, August 5 Friday, August 10 Thursday, August 15 Monday, August 19 Thursday, August 22 Monday, August 26	Classes end - Evening summer session Examinations begin - Evening summer session Examinations end - Evening summer session Last day for applications — Evening Division (1974-75) Registration for enrolled students begins Registration for enrolled students closes General registration begins
September	Monday, September 2 Friday, September 6 Monday, September 9 Monday, September 9 Friday, September 20, 4:30 p.m. Saturday, September 21	Labour Day - University closed General registration closes - NO LATE REGISTRATION Classes begin - Day and Evening divisions Course change period begins Course change period ends Last day for financial adjustments to contracts (1974-75)
October	Monday, October 14	Thanksgiving Day - no DAY classes
November	Friday, November 1 Monday, November 4 Friday, November 15 T.B.A. Saturday, November 30	Last day for academic withdrawal from first term courses (3 credits) Last day for applications - supplemental examinations for Summer Session Last day for applications - Day division - January Entry Fall Convocation Supplemental examinations - Summer Session
December	Saturday, December 7 Saturday, December 7 Saturday, December 21	Last day of classes - first term Examinations, Mid-term and first term final Day and Evening divisions Last day for examinations prior to holiday recess.

1975

January	Friday, January 3	Examinations recommence
	Saturday, January 4	Examinations end
	Monday, January 6	Classes begin - second term
	Monday, January 6	Course change period begins for courses offered only in the second term
	Friday, January 10	Course change period ends
February	Monday, February 17	Seminar Day - No classes
	Tuesday, February 18	Seminar Day - No classes
	Friday, February 28	Last day for academic withdrawal from full courses and second term half courses
March	Saturday, March 1	Last day for application to Day University (1975-76)
	Monday, March 10	Last day for applications - first term supplemental examinations - graduating students only
	Saturday, March 22	First term supplemental examinations - graduating students
April	Tuesday, April 8	Last day of classes - second term
	Saturday, April 12	Final examinations begin - Day and Evening division
	Tuesday, April 15	Last day for applications to Evening Summer University
	Saturday, April 26	Final examinations end
May	T.B.A.	Spring Convocation
June	Thursday, June 12	Last day for supplemental examination applications
August	Friday, August 15	Last day for application to Evening University (1975-76)

Tentative Examination Timetable

1. Each lecture block has been assigned an alphabetical code.

2. All examinations in one time block will normally be written at the time assigned. However, some courses with multi sections may be removed and placed in one of the common blocks while others may be removed for academic or administrative reasons and placed in a special time block.

3. Students are reminded that it is the instructor's prerogative to establish his method of course evaluation; therefore, it is quite probable that many courses will not hold official examinations.

4. It is recommended that students avoid making other commitments during the examination periods until the official timetable is posted one month prior to the beginning of examinations.

Coding

MWF 8:45-9:35 a.m.	A	TT 8:45-10:00 a.m.	H	Mon 6:15-8:10 p.m.	N	Mon 8:30-10:25	S
MWF 9:50-10:40	B	TT 10:15-11:30	I	Tues 6:15-8:10	O	Tues 8:30-10:25	T
MWF 10:55-11:45	C	TT 11:45-1:00 p.m.	J	Wed 6:15-8:10	P	Wed 8:30-10:25	U
MWF 12:00-12:50 p.m.	D	TT 1:15-2:30	K	Thurs 6:15-8:10	Q	Thurs 8:30-10:25	V
MWF 1:05-1:55	E	TT 2:45-4:00	L	Fri 6:15-8:10	R	Fri 8:30-10:25	W
MW 2:10-3:25	F	TT 4:15-5:30	M			Sat 8:45-10:40 a.m.	X
MW 3:45-5:00	G					Sat 11:00-12:50 p.m.	Y

Christmas Examinations

	Morning	Afternoon	Evening
Sat, Dec. 7	Common	Common	
Mon, Dec. 9	A	Special	N
Tues, Dec. 10	I	E	O
Wed, Dec. 11	B	Special	P
Thurs, Dec. 12	J	Special	Q
Fri, Dec. 13	C	G	R
Sat, Dec. 14	X-Common	Y-Common	
Mon, Dec. 16	D	Special	S
Tues, Dec. 17	K	Special	T
Wed, Dec. 18	F	M	U
Thurs, Dec. 19	L	Special	V
Fri, Dec. 20	H	Special	W
Sat, Dec. 21	Common	Common	
Fri, Jan. 3	Special	Special	Common
Sat, Jan. 4	Special	Special	

April 1975

	Morning	Afternoon	Evening
Sat, Apr. 12	Common	Common	
Mon, Apr. 14	A	Special	N
Tues, Apr. 15	I	E	O
Wed, Apr. 16	B	Special	P
Thurs, Apr. 17	J	Special	Q
Fri, Apr. 18	C	G	R
Sat, Apr. 19	X-Common	Y-Common	
Mon, Apr. 21	D	Special	S
Tues, Apr. 22	K	Special	T
Wed, Apr. 23	F	M	U
Thurs, Apr. 24	L	Special	V
Fri, Apr. 25	H	Special	W
Sat, Apr. 26	Common	Common	

**Governors, Senate,
Councils, Faculty,
Staff**

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Vice-Chairman: Edmond A. Lemieux

Secretary: Rudolf P. Duder

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Nick Calinoiu
James G. Dick
S. Drummond
P. Fedele
Paul Gallagher
Robert Gervais
A. Graham
Robert L. Grassby

Henry P. Habib
John R. Hannan
Theodore D. Lande
James F. Lindsay
Tannis Maag
Clifford S. Malone
Patrick G. Malone
Peter M. McEntyre
Jack G. McGraw

John T. McIlhone
Donald W. McNaughton
John W. O'Brien
R. Eric O'Connor
William F. O'Mahony
David Saskin
John E. Skinner
John Smola
John W. Tait

Senate

Chairman: John W. O'Brien

Secretary: John Noonan

Omair Ahmad
Roger Angel
Andrew Berczi
Jitendra Bhatnagar
Jack Bordan
Russell Breen
Gunther Brink
Victor Byers
J. Clair Callaghan
Ian L. Campbell
Helen Ann Cave
David Charlton
James Conway
Charles Davis
Mark DeSerres
James Dick
John Doyle

Ferne Elliot
Edward Enos
Wynne Francis
Stanley G. French
Lorne Ganten
David Giggey
Carl Goldman
Joseph Hofbeck
Attila Horvath
Ilona Kwiatkowski
Guy Larin
James Lindsay
Patrick G. Malone
Brian Marshall
Chris Martinko
Richard McDonald
David McDougall

Paul McElliot
Hugh McQueen
Joseph Mouledoux
John Norris
William O'Mahony
Zoltan Popp
Calvin Potter
David Saskin
Harvey Shulman
Ron Smith
Joseph Tascone
Peggy Vajo
Roger Verschingel
Robert Wall
James Whitelaw
Bob Wong
G.D. Xistris
Raymond Zienius

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Joti Bhatnagar
Jack Bordan
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Candace Bowen
Gary Boyd
Paul Burrows

Mervin Butovsky
Wade Chambers
Bernice Coisman
Edwy Cooke
Paul d'Hollander
Charles Davis
Michel Despland
Alan Dever
David Frost
Thomas Gray

Jennifer Hackett
Michael Hood
Steve Katz
Frederick Krantz
Dallas Laskey
Claude Lévy
Dallas Laskey
Claude Levy
James McBride

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Paul McElligott	Jane Stewart
Gerald Mahoney	Anne Stokes
David Miller	Rytsa Tobias
Joseph Mouledoux	Mair Verthuy
John O'Brien	Robert Wall
Mona Osborne	Donna White
Edward Pechter	Paul Widdows
Harvey Shulman	Vladimir Zeman
Elizabeth Silver	Joseph Zweig
Lalita Singh	

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& Administration**

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Martin Franklin, *Secretary*

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Clarence Bayne	Pham Dang Hoa	Wolfram Pietzsch
Jack Bordan	West Hodge	Calvin Potter
Brian Bowers	Vishnu Kirpalani	Stephen Robbins
Lawrence J. Boyle	Lawrence Kryzanowski	Barry Rosenfeld
Pierre Brunet	Adalbert Lallier	Irene Sendek
G. Robert Curnew	Mark Lattoni	Bruce Smart
Henry Dauderis	David F. MacDonald	Robert Sweitzer
Kailash Dhawan	Bruce Mallen	Akira Takahashi
Adam Dickie	Harvey Mann	Donald C. West
Frank Dougherty	Brian Markland	Eric N. West
Kent Elvidge	Barry Mills	Roland O. Wills
G. Bruce English	John O'Brien	
James G. Finnie		Three Evening Students to be appointed

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Matthew McC. Douglass	James F. Lindsay	George D. Xistris
M.P. du Plessis	Bela Lombos	
Paul P. Fazio	Cedric Marsh	

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 Peter H. Bird
 Alan Bishop
 Jack Bordan
 Josef Brody
 Victor Byers
 Cathi Campbell
 Andre Deland

Henry de Romer
 James G. Dick
 Nelson Eddy
 Hildegard Enesco
 Ilona Kwiatkowski
 Gerard Leduc
 Frank MacLeod
 Mohammed Malik
 James McBride

Stanley Morris
 John W. O'Brien
 John Senez
 Ramesh Sharma
 Russell Sharp
 Thomas Swift
 Marge Tarabula
 Muhammed Zaki

One Evening Student
 to be appointed

University Council on Student Life

David Charlton, *Chairman*
 Jack Hopkins, *Secretary*

Mike Bazuk
 Mike Brian
 David Brown
 Nick Calinoiu
 June Chaikelson
 Magnus Flynn

John Freedman
 David Giggey
 John Hannan
 Douglas Insleay
 Steve Katz
 Sorin Lupo

John Mackinnon
 William O'Mahony
 David Saskin
 Stephen Scheinberg
 Chandra Shekker
 Alex Sproule
 Roland Wills

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Assistant Dean: A.D. Insleay, M.Sc.

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James H. Whitelaw, M.A.

Associate Vice-Rector, Academic:

David McDougall, Ph.D.

Assistant Vice-Rector, Academic:

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Assistant Dean: Frederick Bedford, M.Sc.

Dean of Commerce: Andrew Berczi, Ph.D.

Assistant Dean: Harvey Mann, Ph.D.

Assistant Dean: Roland O. Wills, M.B.A.

Dean of Engineering: J. Clair Callaghan, M.S.

Assistant Dean: J. Charles Giguère, Ph.D.

Assistant Dean: F. Douglas Hamblin, P. Eng.

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Assistant Liaison Officer: Eleanor Bentley, B.Sc.

Development Officer: J. Stirling Dorrance, M.A.

Vice-Rector, Administration and Finance: John Smola, Ph.D.

Assistant Vice-Rector, Administration: A. J.

Laprade, B.Eng.

University Auditor: Claude M. Dallaire, B. Com., M.B.A.

Assistant Vice-Rector, Administration - Communications, and Director of Computer Centre: Graham Martin, M.Sc., Eng.

Manager of Operations and Software:

Ivan Fuchs, B.Sc.

Manager, Administrative Services:

John L. Porter, M.A., C.A.

Manager, Academic Services: Vincent McLeod, B.A.Sc.

Manager, Outside Services: William E. Ellis

Assistant Director, Centre for Instructional Technology: Bernard Queenan, M.A., M.Ed.

Manager, Bookstore: Margaret MacMurray

Assistant Vice-Rector, Administration - Physical Resources: J.P. Pétolas, B.Sc.

Director, Physical Plant: Harald Siré, Dipl.-Ing., Eng., M.E.I.C.

Director, Building Services: Jacques Dupuis

Electrical Superintendent: Alfred C. Peters

Mechanical Superintendent:

Fernand A. Villemaire

Non-Mechanical Superintendent:

John St. G. McCabe

Chief Security Officer: Roland Barnabé

Treasurer: William M. Reay, C.A.

Assistant Treasurer: Wilfred McManus, B.A., B. Com.

Assistant Treasurer: Frederick Sauer

Purchasing Agent: John Jacob

Manager, Printing Services: Cyril L. Macdonald

Chief Librarian: J. E. Kanasy, Ph.D.

Assistant University Librarian for Public Services: Olga Anderson, M.L.S.

Assistant University Librarian for Technical Services: To be appointed

Collections Coordinator: Michael Hood, B.L.S.

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Assistant Director of Personnel: James Harford, B.Com.

Personnel Officer - Benefits: Colin Waters, B.Sc. (Com.)

Personnel Officer - Employment:

Nelson T. Gibeau, B.A., L.S.Pd.

Personnel Officer - Employment:

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- Sanchez, M.F., Ph.D. (Habana),
Lecturer in Spanish
- Schermerhorn, D., B.A. (Harvard), Ph.D. (Oregon),
Lecturer in Mathematics
- Schnelderman, P.,
Lecturer in Drama
- Schreiber, F.,
Lecturer in English
- Schuegraf, E.J., M.Sc. (Erlangen),
Lecturer in Computer Science
- Schwartz, M., B.Com. (S.G.W.), M.B.A. (McMaster),
Lecturer in Marketing
- Segal, Celina, B.F.A. (S.G.W.),
Lecturer in Fine Arts
- Selvig-George, Edna, B.S. (Minnesota), M.A. (Sacramento),
Lecturer in English
- Serruya, Charlotte, B.A. (S.G.W.),
Lecturer in French
- Sevigny, Pierre, B.A., B.Com. (Laval),
Lecturer in Finance
- Sharp, Marjorie, B.A. (S.G.W.), B.C.L., L.L.B. (McGill),
Lecturer in Management
- Shasha, Nissim, B.Sc., ME, Ing. Dipl. (Technion), M.Eng. (S.G.W.),
Lecturer in Mechanical Engineering
- Shlosser, Edith F., B.A. (S.G.W.), M.A. (McGill),
Lecturer in Classics
- Shoub, Bernard, B.Sc. (McGill), M.T.M. (S.G.W.),
Lecturer in Mathematics
- Silas, Mary, B.A., M.A. (McGill),
Lecturer in English
- Silver, Vivian, B.A. (McGill),
Lecturer in English
- Silverton, S., B.Com. (McGill), M.Sc. (M.I.T.),
Lecturer in Finance
- Simon, Shoshana, B.A. (Hebrew),
Lecturer in Hebrew
- Sirsly, Claude E., B.A. (Loyola), M.B.A. (S.G.W.),
Lecturer in Marketing
- Skelly, William, B. Com., M.B.A. (S.G.W.),
Lecturer in Accountancy
- Slejskova, Nadezda, B. Sc., M.A. (McGill),
Lecturer in Russian
- Steiner, Emery S., B. Com. (S.G.W.), C.A. (McGill),
Lecturer in Accountancy
- Stenson, Harvey, B.A. (Brown), M. Mus. (Syracuse),
Lecturer in Music
- Strei, Gerald, B.A., (Minnesota), M.A. (McGill),
Lecturer in English and Spanish
- Sullivan, Ilse, B.A. (S.G.W.), B. Ed. (Montreal),
Lecturer in Applied Social Science
- Surrey, Philip,
Lecturer in Art
- Svistunenko, Juris, B. Eng. (McGill), M.B.A. (Western),
Lecturer in Management
- Swan, R.A., B.A. (Bishop's), M.A. (U.W. Ont.),
Lecturer in Finance
- Swibold, Susanne, B.F.A. (Chicago), M.F.A. (Michigan),
Lecturer in Art
- Taber John, (New England Conservatory of Music),
Lecturer in Music
- Takach, L., B.A. (Budapest), M.A. (S.G.W.),
Lecturer in Geography
- Teays, W., B.A. (Cal. State), M.A. (Alberta),
Lecturer in Mathematics
- Tekel, Rose, B.A., M.A. (S.G.W.),
Lecturer in Sociology
- Thomas, A., B. Sc. (University of West Indies),
Lecturer in Mathematics

Tiwari, U.,
Lecturer in Mathematics
 Tobber, F., B. Eng., B.A. (McGill),
Lecturer in Quantitative Methods
 Tomasek, O., B. Eng. (Prague), B. Sc. (S.G.W.),
Lecturer in Quantitative Methods
 Tooby, Norman D., B. Com. (S.G.W.),
Lecturer in Accountancy
 Townsend, David F., B. Com., M.B.A. (S.G.W.),
Lecturer in Quantitative Methods
 Tramontana, V., A.B. (N.Y.S.), M.A. (S.U.N.Y.),
Lecturer in Sociology
 Trask, Frank S., B.A. (Acadia), B. Com. (S.G.W.),
Lecturer in Quantitative Methods
 Turpin, Gisele,
Lecturer in French

Usher-Jones, Brian E., B. Com. (S.G.W.), C.A.
 (McGill),
Lecturer in Accountancy

Vallejo, Irene, B.A. (S.G.W.),
Lecturer in Spanish
 Vandycke, Jacqueline, Lic. en. Phil. (Louvain),
 Agré (Louvain),
Lecturer in French
 Van Toch, Lila, Lic. ès Lettres (Lille), B.A.,
 M.A. (Durham),
Lecturer in French
 Varma, N., M.A.Sc. (Waterloo),
Lecturer in Management
 Verchere, Bruce, L.L.B. (U.B.C.),
Lecturer in Accountancy
 Vowles, Edna F., B.Sc. (Bristol),
Visiting Professor of Mathematics

Wagschall, Marian, B.A. (S.G.W.),
Lecturer in Art
 Ward, Donald A., B.Sc. (Alberta), M.B.A.
 (Western),
Lecturer in Management
 Watson, Gayne L., B. Com., M.B.A. (S.G.W.),
Lecturer in Marketing
 Weinstein, Leonard, B.A. (Manitoba),
Lecturer in Education
 Weiss, B.,
Lecturer in Education
 Whittome, Irene, Dip.F.A. (Vancouver),
Lecturer in Art
 Wierzbicka, Wanda, M.A. equivalent, (Warsaw
 Conservatory, Poland),
Lecturer in Music
 Wilcher, Asher, M.A. (Jerusalem), D.E.S.
 (Montreal),
Lecturer in Hebrew
 Windebank, John, M.A. (Dalhousie),
Lecturer in Mechanical Engineering

Wolkove, Peter, C.A.,
Lecturer in Accountancy
 Worrell, Thora, B.A. (S.G.W.),
Lecturer in English
 Wrigglesworth, John, B.A. (McGill), M.T.M.
 (S.G.W.),
Lecturer in Mathematics
 Wright, Jean, B.A. (U.B.C.),
Lecturer in English

Zack, Stan E., B.Sc., M.B.A. (McGill),
Lecturer in Quantitative Methods
 Zalite, R., B.Sc. (McGill),
Lecturer in Mathematics
 Zemnickis, R.,
Lecturer in Fine Arts
 Zgarka, Albert, Bacc., Lic. ès Lettres (Alger),
Lecturer in French
 Zwaig, Marilyn S., B.A. (S.G.W.), M.A.
 (Syracuse),
Lecturer in Education

Musicians in Residence

Baty, Janice B., B. Mus. (Eastman School of
 Music), M. Mus. (Yale School of Music)

Braid, James, B. Mus. (Perf.) (Baldwin-Wallace)

Decker, Franz-Paul, Staatsexamen (Cologne),
 Director, Montreal Symphony Orchestra, Professor
 of Music in Residence

Valleau, William, Montreal Symphony Orchestra

Zilberberg, Roselyn, B.Sc. (Mus. Ed.) (Temple),
 M. Mus. (Perf.) (Yale)

Admission Regulations

Admissions

Thomas E. Swift, B.A., *Assistant Registrar and Director of Admissions*
 Lynne Prendergast, *Assistant Director of Admissions*
 Linda Durkee, *Admissions Officer*
 Sally Anderson, *Admissions Interviewer*

Location

Norris Building, Room N220
 1435 Drummond Street
 879-4280
 879-5955

Classification of Students

(1) Undergraduate Students: Undergraduate students are those who meet the full admission requirements of the university and who have been formally accepted for admission to a faculty of the university. These students enroll in either the Day or Evening Division with the intention of completing the work required for a degree. If a student is admitted to a degree programme, he will be classified as an undergraduate whether he is taking several subjects or only one in any given year.

(2) Independent (Partial) Students: Students who do not wish to proceed to a degree irrespective of the number of courses they may be following in any given year are classified as independent (partial) course students. Students who register as independent students are not considered to have satisfied the undergraduate admission requirements and have no standing towards any degree at the university. If an independent student later transfers to undergraduate standing, he may receive credit towards his degree for the courses already taken, provided they apply towards the degree requirements at the time of transfer.

Degrees Offered

Bachelor of Arts:	90 Credit Programme
Bachelor of Fine Arts:	90 Credit Programme
Bachelor of Science:	90 Credit Programme
Bachelor of Commerce:	90 Credit Programme
Bachelor of Engineering:	3 to 4 Year Programme
Bachelor of Computer Science:	90 Credit Programme

Note: The normal course load for full-time students during an academic year (September to April) is 30 credits.

Non-Quebec students may be considered for admission to 90 credit or 120 credit undergraduate programmes leading to the above-mentioned degrees. The duration of the programme will be determined by the entrance qualification. The extra 30 credits is required of out-of-province

students who have completed a level of formal education which in qualifying them for post-secondary studies has not provided as full an academic background as one requires for the Diploma of Collegial Studies.*

Areas of Specialization

Students applying for entry to the Faculty of Arts will register in one of the following: a departmental major, a joint major, an interdisciplinary major, a departmental honours programme, a combined honours programme, an interdisciplinary honours programme.

Students applying for entry to the Faculty of Science may register in an honours, major, major-minor, joint major, or general programme.

Students applying for entry to the Faculty of Commerce and Administration will register in a major or honours programme.

Students applying for entry to the Faculty of Engineering or Computer Science will indicate which of the three available areas of specialization they wish to enter.

In keeping with the principles of general education in CEGEP*, whereby students are encouraged to explore fields other than those of future specialization, universities must continue to offer, at the undergraduate level, certain introductory courses. It will be appreciated that students may not take for credit in their undergraduate programme courses which are similar in content to those used to qualify for admission. If in doubt, a student should check with the Admissions Office or the appropriate department before registering in a course.

The various areas of specialization and programmes therein are listed below:

* The minimum entrance requirement for Quebec students.

* Colleges of General and Vocational Education in the Province of Quebec.

Faculty of Arts	Major	Honours	Joint Major
Applied Mathematics (Optimization)	o		o
Applied Social Science	o		
Art History (B.A.)			o
Art History (B.F.A.)	o	o	
Art History & Studio Art (B.F.A.)	o		
Art Education (B.F.A.)	o		
Asian Studies	o		
Canadian Politics	o		
Canadian Studies	o		
Comparative Political Studies	o		
Economics	o	o	o
Early Childhood Education	o		
Education			o
English	o	o	o
English & Religion		o	
Fine Arts (B.F.A.)	o		
French	o	o	o
Geography	o	o	o
German	o		o
Graphic Design (B.F.A.)	o		
Greek			o
Hebrew			o
History	o	o	o
History & Philosophy		o	
History & Religion		o	
Humanities of Science	o		o
International Affairs	o		
Italian			o
Judaic Studies	o		o
Latin			o
Linguistics			o
Mathematics	o	o	o
Moving Pictures (B.A.)			o
Moving Pictures (B.F.A.)	o		
Music (B.A.)			o
Music (B.F.A.)	o		
Philosophy	o	o	o
Philosophy & Education		o	
Philosophy & English		o	
Philosophy & Religion		o	
Philosophy & Sociology		o	
Philosophy of Education			o
Political Science	o	o	o
Political Philosophy	o		
Psychology	o	o	o

	Major	Honours	Joint Major
Religion (or History & Philosophy of Religion)	o	o	o
Religion & Sociology		o	
Russian			o
Russian Studies	o	o	
Science and Human Affairs	o		o
Social Psychology	o	o	
Social Welfare	o		
Sociology	o	o	o
Spanish	o		o
Statistics	o	o	o
Teaching English as a Second Language*	o		
Theatre Arts (B.A.)			o
Theatre Arts (B.F.A.)	o		
Urban Studies	o	o	
Visual Arts (B.A.)			o
Visual Arts (B.F.A.)	o		
Women's Studies			o

* This programme is pending approval.

Faculty of Science	Major	Honours	Joint Major
Biochemistry	o		o
Biological Sciences	o	o	o
Chemistry	o	o	o
General Science	o		
Geology	o		o
Geology, with minor in Ecology	o		
Mathematics	o	o	o
Statistics	o	o	o
Applied Mathematics (Optimization)	o		o
Physics		o	
Experimental Physics	o		o
Theoretical Physics	o		o
Physics - Marketing	o		
Psychology	o	o	o

Faculty of Commerce and Administration	Major	Honours	Joint Major
Accountancy	o	o	
Economics	o	o	
Finance	o	o	
General Business	o	o	
Management	o	o	
Marketing	o	o	
Quantitative Methods	o	o	

Faculty of Engineering

The following general areas of specialization are offered in the Faculty of Engineering:

Civil Engineering	}	Bachelor of Engineering
Electrical Engineering		
Mechanical Engineering		
General Business Option	}	Bachelor of Computer Science*
General Science Option		
Electronics/Systems Option		

* Please note that applicants are required to select one of the above-mentioned options when applying for the Bachelor of Computer Science degree.

Admission Requirements (Day and Evening Divisions)

Quebec

A) Successful completion of a two-year pre-university programme in a CEGEP, or CEGEP-equivalent programme, with the award of a Diploma for Collegial Studies.

B) Within this general programme, successful completion of whatever specific courses are required for entry into a given undergraduate programme. These pre-university "profiles", established through joint action of the Quebec universities and the Department of Education of the Province, will be found in the Department of Education booklet *Cahiers de l'Enseignement Collegial* 1973-74 or in the Sir George Williams University Collegial Programme Announcement. For the convenience of applicants, requirements are listed in each faculty section of this calendar.

C) The completion of certain three-year technological programmes leading to a Diploma for Collegial Studies may also satisfy the requirements for admission.

Other Provinces

With the exception of Newfoundland, Ontario, and Quebec, students from other Canadian Provinces who have completed Grade XII with high academic standing in appropriate subjects will be considered for entrance into a 120 credit programme. Ontario Grade XIII graduates with high academic standing in appropriate courses may be admitted into a 90 credit programme. Superior Ontario Grade XII graduates may, in exceptional cases, be permitted to enter a 120 credit programme. The minimum requirement from Newfoundland for admission into a 120 credit programme is the successful completion of one full year of undergraduate study at Memorial University.

Province	Minimum Entrance Requirement	Admits To
Alberta	Grade 12	120 Credit Programme
British Columbia	Grade 12	120 Credit Programme
Manitoba	Grade 12	120 Credit Programme
New Brunswick	Grade 12	120 Credit Programme
Newfoundland	1st Year Memorial University	120 Credit Programme
Nova Scotia	Grade 12	120 Credit Programme
Ontario	Grade 12 (with superior grades)	120 Credit Programme
	Grade 13	90 Credit Programme
Prince Edward Island	Grade 12	120 Credit Programme
Saskatchewan	Grade 12	120 Credit Programme

United Kingdom and Commonwealth

In order to be considered for admission into a 90 credit undergraduate programme, applicants must present five General Certificate of Education

papers including at least two at the Advanced Level. Those wishing to enter the Faculty of Engineering-Bachelor of Engineering or Bachelor of Computer Science (General Science Option or Electronics/Systems Option) - must

offer Advanced Level passes in Mathematics and Physics. Applicants to the Faculty of Science are normally expected to have Advanced Level passes in Mathematics and one Science. Candidates for admission to the Faculty of Commerce or the Bachelor of Computer Science (General Business Option) should include an Advanced Level paper in Mathematics. Any two acceptable Advanced Level papers will satisfy the requirements for admission to the Faculty of Arts (including Fine Arts).

For entrance to the Engineering Faculty, Higher National Certificates and Diplomas with passes at an appropriate level may be accepted in lieu of Advanced Level passes.

Students with better than average results in five acceptable Ordinary Level papers plus one full year of formal schooling beyond Ordinary level may be considered for admission into a 120 credit undergraduate programme.

Applicants from Hong Kong who have received the Hong Kong Certificate of Education (English) with good grades in five subjects and have completed one year of Form VI or the Hong Kong Certificate of Education (Chinese) with good grades in five subjects and have passed the Chinese University of Hong Kong Matriculation Examination may apply for admission to a 120 credit undergraduate programme.

Applicants to a four year undergraduate programme in Engineering or the 120 credit programme in Science must include Mathematics and at least one Science subject; those applying to Commerce must include Mathematics as part of their entrance qualification.

United States

High School graduates from accredited schools who have followed an academic programme designed for university entrance may apply for admission to a 120 credit programme. Applicants

are required to have a better than average school record and a suitable high ranking in their graduating class. Four units of English are required for admission to each Faculty. Those applying for admission to Science and Engineering must include three or four units in Mathematics and two in the Sciences. At least three units of Mathematics are required for admission to Commerce. The Committee on Admissions may approve slight deviations from the above pattern.

Students who have successfully passed Advanced Placement examinations in appropriate subjects with a grade of '3' or better will be granted some advanced standing.

An applicant seeking admission on the basis of one full year of undergraduate study may qualify for admission to a 90 credit undergraduate programme. Students transferring with more than one year of undergraduate study, will be considered for an appropriate level of placement within the 90 credit undergraduate programme at this university. For example, two or three years of undergraduate study completed elsewhere will normally qualify an applicant for entrance to the second or third year respectively of a 90 credit degree, provided that the previous work is appropriate to the intended programme of study at Sir George Williams University. It should be noted that there are special conditions attached to the granting of transfer credit. Further information may be obtained by writing to the Office of Admissions.

Other Countries

The following national certificates are recognized as qualifications for entrance to the undergraduate programmes provided that better than average grades have been attained. More specific information with respect to admission requirements and placement levels may be obtained by writing to the Office of Admissions.

Country	Certificate
Argentina	Bachillerato Universitario
Australia	Higher School Certificate University Matriculation Certification
Belgium	Certificat d'Humanités
Czechoslovakia	Vysvedceni o Maturitni Zkousce
France	Baccalauréat (2ième partie)
Germany	Zeugnis der Reife
Greece	Akadimaiko
India	Intermediate Certificate or First Year of Three Year B.A., B.Sc., B. Com. (with High Class II or High Second Division standing.)

Iran
Israel
Italy

Lebanon
The Netherlands
Norway
Pakistan

Poland
United Arab Republic
Vietnam
Yugoslavia

International Baccalaureat

Sixth Year Secondary Education Certificate
Matriculation Certificate
Diploma di Maturita Classica
Diploma di Maturita Scientifica
Lebanese Baccalauréat (2ième partie)
Getuigschrift (Gymnasium or Lyceum)
Examen Artium
Intermediate or Higher Secondary
School Certificate (with High Second
Division standing)
Swiadectwo Dojrzalosci
General Secondary School Certificate
Vietnamese Baccalaureat (2ième partie)
Chegorantbo or Svedocanstvo

Certificate of Baccalaureat

Criteria for Admission

The Pre-University Transcript

1) Applicants from a CEGEP: Transcripts must be sent directly to the Office of Admissions by the Registrar of the CEGEP. The results of the first three semesters together with a certified list of courses being followed during the fourth and final semester must be submitted immediately. A final transcript showing the results of the fourth and final semester must also be submitted as soon as possible. *Two* copies of each transcript are required.

2) Applicants from a CEGEP-Equivalent Programme: Transcripts must be sent directly to the Office of Admissions by the Registrar of the University. A transcript showing the results of the previous year(s), the final results of any first semester half courses of the current year, and a complete list of courses being taken during the current year must be submitted immediately. A final transcript showing the complete record of study must be submitted as soon as possible. *Two* copies of each transcript are required.

3) Applicants from the S.G.W.U. Collegial Programme: Transcripts will be obtained by the Director of Admissions directly from the Records Office.

4) Non-Quebec Students must submit:

A) Readable photocopies of all the required academic certificates, with official translations into English or French, if in some other language. All certificates must show the actual grade obtained in each examination.

B) The School Principal's Confidential Report and complete secondary school record to be submitted directly by the school, not by the student. A form which may be used for this purpose has been included with the application

form. (Not required of students who have successfully completed one full year in an accredited university.)

C) If applicable, two official transcripts to be sent directly by the Registrar of each university at which you have been registered. Although an applicant's records from several institutions may be summarized on one transcript, an application will not be considered until two official transcripts from each university attended have been received. These are required even though no credit may have been earned at an institution.

Language Proficiency

Any student applying from outside Canada, whose first language is other than English, must demonstrate that he is proficient in the English language by writing the Test of English as a Foreign Language administered by the Educational Testing Service.

Information and applications to write the test may be obtained by writing to: Test of English as a Foreign Language, Educational Testing Service, Princeton, New Jersey, 08540, U.S.A.

For students applying from within Canada to a 90 credit programme whose first language is other than English and who have had all or part of their secondary schooling in another language, the university assumes that such students will have assessed their ability to cope with a programme where the language of instruction is English. To help those unsure of their competence, the university offers a voluntary diagnostic testing service, and a course is available for those who wish to improve their proficiency. This is a MSQP course which does not carry undergraduate credit. Students are advised to avail themselves of this service, since

no special adjustments can be made in the case of students unable to continue in their programmes through lack of English-language proficiency.

Such students entering a 120 credit programme must write the Sir George Williams English Language Diagnostic Test.

Selection Process and Notification

Admission to undergraduate studies is based on a careful review of all credentials presented on behalf of a candidate. An application for admission is not given final consideration until all the required items have been submitted. However, the university does have an Early Conditional Admission Plan for applicants to the undergraduate programme.

Early Conditional Admission

Applicants seeking admission to the undergraduate programmes may be granted a conditional acceptance on the basis of the first three semesters of work in a CEGEP, or its equivalent. Acceptance is contingent upon the student's successful completion of the final semester of study and upon meeting the prescribed academic admission requirements. Candidates admitted on the basis of Early Conditional Admission are notified prior to May 15.

S.G.W.U. Collegial Graduates

Students who are currently enrolled in their final year of the Sir George Williams Collegial Programme and who wish to proceed to the first undergraduate year are required to apply for admission to their preferred area of course specialization in the undergraduate programme. Application must be made prior to MARCH 1 on forms provided by the Office of Admissions.

Admission of Transfer Students

An applicant who has attended another university and wishes to transfer to the undergraduate programme at Sir George Williams University should understand the following conditions:

1) Each application for advanced standing is considered on its own merit. Former university transcripts are not to be submitted by the applicant but must be sent directly to the Office of Admissions from the Registrar of his previous university. Two copies of each transcript are required. Although an applicant's records from several institutions may be summarized on one transcript, an application will not be considered until two official transcripts from each university attended have been received. These are required even though no credit may have been earned at an institution.

2) A student will not be given credit for courses taken in another university during the same academic term in which he has registered for courses at Sir George Williams University, unless special permission has been obtained in advance from this university.

3) Any student who has registered at Sir George Williams University and who wishes to take courses at another university for transfer of credit to Sir George Williams must first have the courses approved by this university.

4) A student may not apply transfer credits towards the residence years at the university unless special permission has been obtained from the appropriate Faculty Council (see Residence Requirements).

Mature Student Qualifying Programme

In keeping with the traditional open policy of Sir George Williams towards older students, the Mature Student Qualifying Programme is designed to enable students who are twenty-one years of age or older to prepare themselves for entry to the new post-CEGEP undergraduate programme. The university assumes that the age of such students will have allowed them to acquire informally some of the general education given to younger students in CEGEP, and concentrates on the knowledge and skills needed to tackle a given undergraduate programme. The Mature Student Qualifying Programme is offered in the Evening Division. Under special arrangements Mature students may take the qualifying courses as full-time students. Students completing the Mature Student Qualifying Programme may enter the 90 credit programmes and are required to apply for admission to their intended area of course specialization in accordance with the prescribed application deadline dates. Application forms are available from the Office of Admissions. See page 282 for further details.

Admission as an Independent (Partial) Student
University undergraduate entrance requirements are expected, but may be waived for partial students over twenty-one years of age, who have, through other experiences, the essential background for the course or courses. Nevertheless, the university reserves the right of decision as to the independent student's eligibility and, in certain cases, the right to ask for proof of appropriate university entrance requirements. While independent course students following single courses of interest are encouraged to enroll, priority will be given to students proceeding to a degree.

It is not necessary for new independent students to submit an application form. Students should contact the Admissions Office for the proper procedure to follow.

Admission Deposit (Day Applicants Only)

Each applicant who has been granted an Early Conditional or Regular admission to the Day Division is required to submit a certified cheque or money order of \$25.00 (Canadian) to confirm his intention of entering the university. This admission deposit is non-refundable, but will be applied towards tuition fees. In addition, it is not transferable nor may it be applied towards tuition fees for a session other than that to which the student has applied.

Students who receive an Early Conditional Acceptance but who do not successfully complete the minimum academic requirements for entrance and are subsequently refused admission will be refunded the admission deposit.

Medical Examination Report (Day Applicants Only)

Each student who is granted admission to the Day Division of the university must submit a Medical Examination Report on the form provided by the Director of Admissions. The medical report is not required until the student has received formal notification of acceptance.

Dates of Entry for New Undergraduate Students

Students are admitted as Day undergraduates in September and January. Evening undergraduates are admitted in September and May.

Dates for Receipt of Applications

Applications for admission to undergraduate studies (all Faculties and years) should be submitted to the Office of Admissions prior to the following dates:

Day Division, Winter Session (September to April)

March 1

Evening Division, Winter Session (September to April) August 15

Evening Division, Summer Session (June to August) April 15

Day Division, January Entry (January to April) November 15

Registration Procedures

Registration Procedures 1974-75

General Information

All students intending to follow courses during the fall and winter terms must register during the formal Registration period. Registration involves the selection of specific courses for the 1974-75 academic year in consultation with faculty members present; receiving or updating identification cards; and payment of tuition fees. Continuing Education students register with the Department of Continuing Education. All other students must present appointment cards on arrival at the Registration Centre at the appropriate time. Details for each category of students are given below.

For information concerning courses or section changes and withdrawal for the year, consult the calendar section 'Course Changes, Additions, Withdrawals', page 54.

Students Applying through the Admissions Office

Day and evening students applying through the Admissions Office are formally notified of acceptance to a specific programme of study. Their letters of acceptance contain registration instructions and appointment cards which *must* be brought to registration at the date and time indicated, between August 26 and September 6.

New day students may take advantage of pre-registration (see 'Current Day Division Students' below) by consulting with the Admissions Office.

New Independent (Partial) Students

New independent (partial) students must meet minimum entrance requirements (page 38). They must obtain their appointment cards in early August from the University Records Office and register on September 6.

Current Evening Division Students

Independent (partial) students, undergraduates and MSQP students of the past academic year (not including the summer session) will receive registration material by mail. Registration will be held between August 26 and September 6.

Former Evening Division Students

All former students not registered for the past academic year must obtain appointment cards at the University Records Office in early August for the registration period August 26 to September 6.

Current Day Division Students

Pre-registration is required of all students currently registered who plan to return as full-

time day students in September 1974. They will receive registration material by mail in early March 1974.

Pre-registration involves consultation with the appropriate faculty advisor between mid-March and June 28.

Special registration appointment cards will be mailed in early August to all pre-registered students; they will obtain course cards, receive or update identification cards, and make tuition payments between August 19 and August 22.

Day students who do not take advantage of pre-registration or who failed the current academic year will register in the normal manner, between August 26 and September 6. Appointment cards will not be mailed, but must be obtained at the Records Office, Room 107, Norris Building.

Proxy Registration

All students must register in person or by proxy at the time specified on the registration appointment card. Special forms for proxy registration must be used and are available at the Records Office, Room 107, Norris Building.

Fees

The University reserves the right to institute additional fees and to adjust existing fees without notice.

Tuition: Undergraduate Fees

Engineering Courses \$45.00 per course

All Other Courses \$15.00 per credit

Day Division:

Students' Association Fee \$ 25.00

Students' Services Fee \$ 38.00

Students' Services Fee (Summer) . . . \$ 4.00

Student Faculty Association fees not exceeding \$8.00 per day student are payable in addition to the fees set out above.

Evening Division:

Evening Students' Association Fee

(Winter) \$ 6.00

Students' Services Fee \$ 8.00

Students' Services Fee (Summer) . . . \$ 4.00

Miscellaneous Charges:

All Divisions:

Associate Diploma Fee \$ 5.00

Course and/or Section Change (per subject) 5.00

Effective Reading Course (registered students) 25.00

Effective Reading Course (others) 85.00

Engineering Certificate 5.00

Graduation Fee, must be paid by April 1st 10.00

Copy of Certificate of Registration (additional) 1.00

Late Registration Fee 10.00

Re-reading of paper (refundable if grade is raised) 10.00

Removal of "incomplete" 10.00

Replacement of Identification Card 5.00

Special Examination Fee, per paper 15.00

Special Registration Fee 10.00

Supplemental Examinations, per paper (written at S.G.W.U.) 10.00

Supplemental Examinations, per paper (written at other Canadian centres) 15.00

Supplemental Examinations, per paper (written at external centres) . . *15.00

Transcript 1.00

Policy on Payment of Tuition Fees

On registration, students contract to pay the full tuition fees for the courses selected for the academic year. Any student under 21 years of age must be accompanied by a parent or a guardian who must sign the tuition contract, or he must provide the university with the written consent of a parent or guardian to sign a tuition contract with the university. These contracts are binding and may be cancelled only at the discretion of the Treasurer.

Normally, tuition and other fees are paid in full at the time of registration. Students may apply at registration for permission to pay their fees in instalments. Registration is not considered complete in any case until students have complied with the regulations of the Registrar's Office and have paid the prescribed deposit or have made arrangements for payment, approved by the Treasurer's Office.

All tuition accounts not paid in full on or before October 1st are subject to a deferred payment charge. All tuition accounts not paid in full by February 28th will be assessed the maximum deferred payment charge of \$10.00.

All contracts are subject to revision for adjustment of errors.

Course Cancellations, Withdrawals and Adjustments

1. Any student who cancels a course or withdraws from the university is required to notify the Records Office in person or in writing as indicated on page 000 and to give his reason for withdrawing. Cancellation of courses or withdrawal from the university does not necessarily entitle a student to refund of fees or cancellation of contract.

2. Students who cancel courses or withdraw from the university within the two week period (14 calendar days) from and including the date of commencement of the current academic term are entitled to a rebate of tuition fees as follows:

For two term courses 75%

For first term courses 50%

For second term courses 100% less \$10 registration fee

Students who cancel second term courses within the two week period (14 calendar days) from and including the date of commencement of the second term are entitled to a rebate of 50% of the tuition fees applicable.

No refunds or adjustments will be allowed after the expiration of the two week periods referred to above.

3. In the Day Summer Session no adjustments or refunds are allowed for cancellation of courses made after the start of the session.

4. Failure to attend classes shall not be considered a cancellation of contract.

5. In the event that the university grants a refund, the following fees are not refundable, viz: students' services fees; fees for course changes; late registration; removal of incompletes; supplemental examinations; student societies; mature matriculation.

6. Day or evening students will be charged a registration fee of \$10.00 per subject for cancellation of courses or complete withdrawal before the start of the term.

7. Failure to make payments of tuition fees or other amounts owed the university, when they fall due, or to arrange for such payments before their delinquent dates, is considered sufficient cause, until the debt has been adjusted with the Treasurer's Office, to (1) bar the student from classes or examinations, and/or (2) withhold diploma, scholastic certificate, or transcript of record.

Academic Regulations

Academic Regulations

These regulations are effective as of September 1st, 1971 and apply to students entering the three-year university programme, MSQP (Mature Student Qualifying Programme) and all Independent (Partial) students. All others are governed by the academic regulations published in the 1970-71 University Calendar.

Definition of Credit

Up to and including the academic year 1973-74, degree programmes have been expressed in terms of courses, with one credit being applied to a "full course" (normally two terms) and one half-credit being applied to a "half course" (normally one term).

Starting in 1974-75, in accordance with the recommendations of the Quebec Council of Universities, the credit-base is being modified to take into account the total activity of the student, in terms of lectures, conferences, laboratories, studio or practice periods, examinations and personal work. One credit represents, for the average student, a minimum of 45 hours spread across the various activities listed above. It will be noted that for 1974-75, this system is not being implemented for the Bachelor of Engineering programme. The definition of degree components are still listed in terms of years and courses.

Academic Year

Winter Session

The day and evening winter session of the university is divided into two terms of fifteen weeks each including the examination period. Dates marking the opening and closing of these terms are found in the Calendar of Events.

Summer Session

A nine-week session is operated during the summer in the Evening Division primarily for Evening Division students.

Summer Sessions and Special Day Summer Sessions are considered part of the following Winter Session for record purposes.

Residence Requirements

1. In addition to the specified courses, there is a residence requirement of one year for any degree, defined as follows: A student in the Faculties of Arts, Science or Commerce must complete the last thirty credits of the courses of the degree requirements at Sir George

Williams University. Engineering students must complete the final ten half-credit courses of the required departmental degree programmes in residence at Sir George Williams University.

2. Any student who already possesses one degree must complete, at Sir George Williams University, a minimum of two years of residence in order to earn a second degree at the Bachelor's level. This regulation applies whether the first degree was earned at S.G.W.U. or at some other university.

3. Any student seeking to transfer to S.G.W.U. after having failed at another university or after having compiled an unsatisfactory record at another university must fulfill the residence requirements stipulated for him if he is admitted. In general, a minimum of two years of residence will be required for any degree.

Course Load

Winter Session - Day Division

The course load varies according to the faculty in which the student is enrolled. Students are advised, however, that a twenty-four credit course load is the minimum any Day Division student must carry in any winter session.

Arts

First year students in the Faculty of Arts will take a maximum of thirty credits. A student may take six courses during one or both of his final two winter sessions providing:

- a) There are no failures in the previous year (minimum, thirty-credit programme) and,
- b) The average grade of the previous year (minimum, thirty-credit programme) is 'B'.

Science and Computer Science

Students enrolled in the Bachelor of Science or the Bachelor of Computer Science programme will normally register for a maximum of thirty credits each winter session.

Commerce

A student may register for a maximum of thirty credits in any winter session.

Engineering

See under Engineering Faculty - page 254.

Evening Division

Students in this division may register for a maximum of three six-credit courses or their equivalent equally divided between the terms.

Summer Session

Students may not take (without permission of their Faculty Council) more than twelve credits of work during a summer session. This regulation applies to students registering in courses offered in the Evening Division, Special Day Summer Sessions, or in a combined programme consisting of courses offered in either division. The course load for Special Day Summer Sessions may be restricted by departmental regulations.

Day students are reminded again that they may not register during the regular evening registration period for the Evening Summer Session unless prior permission of Faculty Council has been granted.

High Academic Achievement

The university recognizes three classifications of high academic achievement.

1. Students may register in an honours programme and by obtaining a grade point average of 3.20 in this programme receive a Bachelor's Degree specifying the honours subject. Full information on these programmes is covered within each faculty section of the university calendar.

2. A Degree with Distinction may be achieved by students registered in any programme in the new three year structure by achieving a grade point average of 3.20 during their last two years (approximation) of study or a grade point average of 3.0 over the complete three years. Specific details of these regulations as well as the regulations for the old four year programme may be obtained from the Records Office. The achievement of Distinction is recorded on the degree certificate.

3. Academic Honours (Dean's Honour Roll) may be achieved in any academic year by acquiring a grade point average of 3.00 for the thirty credits taken during that particular year. The achievement of Academic Honours is recorded on the student's transcript.

Course Changes, Additions, Withdrawals

Students may withdraw from a course or from the university without academic penalty prior to the deadlines indicated below. They are required to notify the Records Office in person or in

writing and give their reasons for withdrawing. Students must present the copy of their registration contract when making course withdrawals, changes or additions. Failure to attend classes or notification to instructors does not constitute a formal withdrawal from the university.

Final withdrawal date for first-term half courses is November 1. Final withdrawal date for full-year and second-term half courses is March 1. Evening Summer Session course withdrawals must be effected by July 3. For procedures covering financial adjustments, see Fees.

Six-credit courses

Course and section changes must be effected by September 20. Evening Summer Session course and section changes must be effected by June 7.

Three-credit courses

For the first term and second term, changes must be effected within the first week of classes in the appropriate term, although second-term courses may also be added during the course change period immediately following fall registration. Note that no half term course may be added after the first week of classes in the appropriate term. Evening Summer Session course changes must be effected by June 7.

Note that section changes are considered course changes and will thus be assessed.

Examinations and Advancement

A university degree certifies that its holder has attained a measurable level of achievement, as established by a recognized system of evaluation. It is consequently required that the performance of each student in each course be evaluated by the instructor (or instructors) responsible for the course.

The final grade which assesses the performance of each student in each course will take into account the total measurable performance of the student in that course. Specifically, the grade will be given on the basis of one or more of the following:

1. Assigned work, term papers, projects, etc.
2. Class participation, which in the case of certain disciplines may justify an attendance requirement.
3. Progress tests.
4. Laboratory tests and/or laboratory work.
5. Mid-term and/or final examinations.

Where appropriate, a level of written expression may be given consideration in determining the final grade.

Grading System

Grades are awarded according to the following system:

Passing Grades

- A. Excellent
- B. Very Good
- C. Acceptable
- D. Marginal
- S. Credit (late completion of term work or passed supplemental examination)

Failing Grades

Failed Course-may write supplemental examination if eligible according to failure regulations.

FNS	Failed Course - no supplemental examination is set for this course.
Inc	Term work incomplete - may complete term work if eligible according to failure regulations.
Abs	Absent from final examination - may write supplemental examination if eligible according to failure regulations.
F-Inc	Failed course, term work incomplete - may write supplemental examination and complete term work if eligible according to failure regulations.
Abs-Inc	Absent from final examination, term work incomplete - may write supplemental examination and complete term work if eligible according to failure regulations.
R	Failed courses or absent from examinations, term work incomplete and/or unsatisfactory attendance where applicable - must repeat course for credit if permitted by failure regulations.

All grades remain permanently on the records. All final grades (including F, R, Inc., Abs. whether cleared later or not) are reported on transcripts.

Failure Regulations

Failures

Failures include the grades F, Abs., Inc. and R.

Failed Students

1. Bachelor of Arts, Fine Arts, Science, Commerce and Administration, and Computer Science.

(a) Any student who fails courses equivalent to more than twelve credits before obtaining thirty credits on record or who fails courses equivalent to more than twenty-four credits before obtaining sixty credits on record is a failed student. To re-register such a failed student must obtain permission from the dean of his faculty.

(b) Any student who fails courses equivalent to more than thirty credits is a failed student. Such a failed student may not apply for re-admission.

NOTE: Students transferring from another university or between faculties at this university with previous failures may be subject to adjustments to the permissible number of failures for courses taken at this university. Students will be advised of this adjustment at the time of their transfer.

(c) Failed students may not write supplemental examinations nor complete courses graded Inc.

(d) Failed students who obtain permission to re-register may be subject to specified course loads at the time of their re-admission.

2. Bachelor of Engineering

(a) Failed students are defined in regulations 2, 6, 7 and 8 under "Additional Regulations in the Faculty of Engineering".

(b) Failed students may not write supplemental examinations nor complete courses graded Inc.

Supplemental Examinations

1. A failed student may not write supplemental examinations.

2. A student may not write a supplemental examination in a repeated course, nor may he write a second supplemental examination in the same course.

3. If a student is granted permission to write a supplemental examination, absence from the

examination is counted as a failure and recorded as an 'R' grade.

4. Medical reasons (certified by a physician on his letterhead) constitute a valid excuse for exemption from most of the regulations concerning supplemental examinations. Such medical reasons must be submitted to the Examinations Office within ten days of the missed examination.

a) A student absent from a regular examination for medical reasons may, if he wishes, write the supplemental examination as his final examination. If he passes he will receive a letter grade and will not be charged with a failure nor a supplemental under the maximum permissible allowances. If he fails he may apply to the Examinations Office to write an additional supplemental examination.

b) A student absent from a supplemental examination for medical reasons is not considered to have failed the examination and may apply to the Examinations Office for an alternate date.

c) A student taken ill during an examination and unable to complete the examination must obtain verification from the nurse on duty. Such certification must be submitted to the Examinations Office within ten days of the date of occurrence.

5. Supplemental examinations in courses taken during the regular session must be written during the following July. Supplemental examinations in courses taken during the Summer Session must be written the following December.

6. Supplemental examinations may be written only at one of the following external examination centres in Canada: St. John's, Nfld.; Sackville, N.B.; Murray Bay, Quebec; Montreal, Quebec; Toronto, Ontario; Sudbury, Ontario; Thunder Bay, Ontario; Winnipeg, Manitoba; Saskatoon, Saskatchewan; Banff, Alberta; Vancouver, B.C. Any student wishing to write a supplemental examination at an external centre (outside of Canada) must arrange an appointment with the Director of Examinations before submitting an application.

7. Supplemental examinations are graded only 'S' (pass) or 'R' (fail).

8. Application to write a supplemental must be submitted by November 5 for Summer Session, March 11 for graduating students and June 14 for Winter Session to the Director of Examinations on a form which may be obtained from the

Examinations Office. Students applying to write a supplemental examination at an external centre must submit the additional external application form with the regular application form. The required fee must accompany all applications.

Completion of Courses

Graded Incomplete

1. A failed student may not complete a course graded incomplete (Inc.).

2. A student is ineligible to complete an 'Inc.' in a repeated course.

3. Application to complete a course graded 'Inc.' must be submitted by October 6 for Summer Session, March 11 for graduating students and June 14 for Winter Session to the Examinations Office. The required fee must accompany all applications. The limiting dates for submission of work are:

a) For the first-term courses in the Winter Session, not later than April 1st.

b) For all other courses in the Winter Session, not later than August 1st.

c) For all courses in the Summer Session, not later than November 1st.

4. Late completions are graded only 'S' (pass) or 'R' (fail) except for medical reasons (see regulations concerning supplemental examinations).

Repetition of Courses

1. A student who has received credit for a completed course may not repeat that course and may not write a supplemental for purposes of upgrading, except as provided by the Additional Regulations in the Faculty of Engineering.

2. A student may repeat a failed course only once.

3. A student who fails a course that is specifically required for a degree must take the course during the Session in which he next registers. If a required course is taken for the first time during the Summer Session and is failed, the student may postpone his registration for repetition of the course until the Session following the regularly scheduled supplemental examination period for Summer Session Courses.

4. If a student repeats a course that is specifically required for a degree and fails it a second time, he may apply to Faculty Council for permission to substitute an alternate course. Unless such permission is granted he will not be allowed to continue in the university toward that degree.

Student Request Committees of Faculty Councils

Each of the faculties has a Student Request Committee which is authorized to consider applications from students on matters relating to academic regulations.

The academic regulations for the degree of Bachelor of Computer Science shall be the same as those for the Faculties of Arts, Science, and Commerce and Administration. Any undergraduate student seeking adjustment of an academic regulation should apply on the appropriate form available at the following Faculty offices:

Arts & Fine Arts	-Asst. Dean of Arts
Science	-Asst. Dean of Science
Commerce & Administration	-Asst. Dean of Commerce
Engineering & Computer Science	-Asst. Dean of Engineering

MSQP* and Partial Students

MSQP and Partial students, including those taking courses in the Engineering Faculty, are governed by the academic regulations specified for the Faculties of Arts, Science and Commerce and Administration.

MSQP students seeking adjustment of an academic regulation should submit requests to the Student Request Committee of their Faculty.

Independent (partial) students must submit all requests relating to university regulations to the Registrar and *not to a dean or faculty council*.

Additional Regulations for the Bachelor of Engineering Degree

The grade point averages in these regulations are defined as follows:

(a) The cumulative grade point average, CGPA, is the ratio of the sum of the grade points obtained in the complete programme followed by the student prior to its calculation to the total number of courses in that programme, regardless of whether they were taken as an independent course student or as an undergraduate.

(b) The yearly grade point average, YGPA, is the ratio of the sum of the grade points obtained in the programme followed by the student during the year under consideration to the total number of courses in that programme.

Points are awarded for each grade as described on page 256. Courses taken during a Summer Session are included with those taken during the subsequent Winter Session in calculating the YGPA.

1. After their first year of attendance, students must maintain a CGPA of at least 1.80 to remain in good standing. If their CGPA falls below 1.80, they will be placed on probation for one year during which they must improve it to at least 1.80.

2. Probationary students failing to improve their CGPA to at least 1.80 are failed students and are required to withdraw from the programme.

3. Students in good standing who fail one-third or less of the courses taken during the year with a YGPA of at least 1.50 are permitted to write supplemental examinations in courses graded F or Abs. and complete the work in courses graded Inc.

However, the following regulation applies to students receiving an 'F' grade in the Fall-term course of a two-course sequence specified by the Engineering Faculty Council: if such a student is eligible to write supplemental examinations, and if, in the immediately subsequent winter term, he passes the second course of the sequence with a grade of 'C' or better, he will be awarded the grade of 'S' for the first course without further examination. In such specified cases, the regular examination in the second course shall serve also as a supplemental for the first course.

NOTE: Students awarded the R grade in the first course are not permitted to continue in the second in the same academic year.

4. If permitted to write supplemental examinations or complete the work in course graded Inc. at the end of the first year of attendance, students whose CGPA is below 1.80 at the start of the next Fall term will be placed on probation for one year during which they must improve it to at least 1.80.

5. Students eligible to write supplemental examinations or complete the work in courses graded Inc. and having more than one failure outstanding from the previous year at the start of the next Fall term must repeat all the failed courses and may repeat those in which they received D grades during their previous year of attendance.

* Mature Student Qualifying Programme

6. Students who either (a) fail more than one-third of their courses taken during the year with a YGPA of at least 1.50 or (b) fail one-third or less of their courses taken during the year with a YGPA below 1.50 (this includes students who pass all courses) are failed students. They must repeat all the failed courses and may repeat those in which they received D grades during their previous year of attendance.

7. Students who fail more than one-third of their courses taken during the year with a YGPA below 1.50 are failed students and must withdraw from the programme for at least one year. They may then apply to the Assistant Dean, Undergraduate Studies, Engineering and Computer Science for re-admission and, if their application is granted, must repeat all the failed courses and may repeat those in which they received D grades during their previous year of attendance.

8. Students whose CGPA falls below 1.80 after previously being on probation or after previously being required to apply for re-admission are failed students and must withdraw from the programme.

Regulations Concerning:

Academic Re-evaluation Conduct During Examinations Plagiarism

Academic Re-evaluation Undergraduate

I. General

1. Two alternative methods for handling academic re-evaluation are set out below. The first requires the appointment of a moderator for each course in a department. The second requires the appointment of a reader to each application. Each chairman shall decide which system is more suitable for his own department, and so inform the dean of his faculty.

2. Nothing in these regulations shall be taken to proscribe the right of a faculty member or chairman of a department to review a grade upon request by a student before formal application for a re-read or re-evaluation is made.

3. The term "re-read" refers to the process whereby a student appeals against a grade received *within* a course, i.e., for a research paper, or examination. The term "re-evaluation" refers to the process whereby a student appeals against his final grade in a given course.

II. Appointment of Course Moderators

1. A moderator shall be appointed by the department chairman for each course the department offers.

2. The moderator for a course will normally be named from within the university, but should have no responsibilities in the presentation of the course. However, there may be special circumstances which require the appointment of a moderator from outside.

3. To cover adequately multi-sectional courses it may be necessary to appoint several moderators.

4. The responsibilities of the moderator shall be:

- (a) To be aware of the objectives of the course and its evaluation procedure prior to its presentation;
- b) To be aware of the formal examination paper(s) of the course in the event of a candidate applying for a re-read in it;
- (c) To attend all formal oral examinations in the course;

(d) To re-read all work representing a major part of the final mark in the course in the event of a candidate applying for a re-read in it.

III. Appointment of Readers

1. A reader shall be appointed by the chairman of the department on the receipt of an application for a re-read. He will normally be named from inside the university, but may be named from outside.

2. The reader shall make himself aware of both the nature and structure of the course and the characteristics of the particular examination.

3. Should the chairman of the department be the instructor of the course, he shall be replaced by the dean.

IV. Re-Reading and Re-Evaluation Procedures

1. The following procedures shall govern the re-reading of examinations whether final or supplemental and the re-evaluation of grades;

2. Any application for a re-read or re-evaluation must be made to the Registrar.

3. An application must be made within 14 days of the release of the grade in question. This delay may be extended in particular cases by the Registrar, but it shall not be extended unless the person applying for a re-read could not reasonably have acted within fourteen days.

4. The application must be submitted to the Registrar's office, and should be presented on the special form obtainable there. It must specify the nature of the re-read or re-evaluation claimed - e.g. for examination or course, and the grounds for the application. The Registrar may require further explanation from the student.

5. The application must be accompanied by a fee of \$10.00, which is refundable if the grade is raised.

6. The Registrar shall file the application, and send a copy to the chairman of the department concerned so that the re-read or re-evaluation can be carried out.

7. The chairman of the department shall then have the re-read or re-evaluation carried out by the course moderator if one has been appointed and is available, or by a reader if a moderator has not been appointed or is unavailable.

8. The re-read or re-evaluation shall be carried out privately, not in the presence of the applicant or his representative.

9. When the moderator or reader has completed the re-read or re-evaluation he shall return the work that he has re-read or re-evaluated to the chairman with his own grade.

10. If the moderator or reader agrees with the original grade, the chairman shall return the paper or papers to the Registrar with a statement to this effect.

11. If the moderator or reader changes the grade, the change should be agreed to by both the instructor who gave the original grade and the chairman before the material is returned to the Registrar. If the instructor is not available, the agreement of the chairman shall suffice.

12. If the original instructor disagrees with the change, the decision as to what grade is to be given devolves on the chairman of the department, who will indicate this fact in his statement to the Registrar.

13. The Registrar shall inform the applicant of the re-read or re-evaluation decision.

14. A grade can be either raised or lowered by a re-read or re-evaluation.

15. The re-reading or re-evaluation procedure should normally be completed within 21 days of the receipt of an application.

16. Either a moderator or a second member of faculty must be present at any formal oral examinations. Application for a re-read or re-evaluation shall be referred to the moderator or the member of faculty who was present at the oral.

17. There is no further appeal once a re-read or re-evaluation decision has been rendered.

18. An application for re-evaluation of a course grade may be refused if the student has not either handed in two copies of all term papers to the instructor or left the original papers with him.

19. Examination scripts shall be retained on the university premises for a period of six months from the close of the examination period.

20. Department chairmen are responsible for ensuring that examination scripts are available for re-reading, and that an appropriate person is always available to carry out re-reads within the time period established.

V. Notes

1. In order to minimize the number of re-read or re-evaluation applications, any faculty member who has papers graded by a teaching assistant shall personally check all failing papers as well as papers close to the borderline for grades or classes before submitting the results.

2. The student request committees of the various faculties shall not be involved in re-reads or re-evaluations.

Conduct During Exams Undergraduate

I. General

1. The candidate taking any form of examination shall not use or attempt to use any material in any form except that which is expressly authorized by those conducting the examination.

2. A candidate shall not speak or otherwise communicate with another candidate or with any person other than the invigilator(s) or instructors except when such communication is expressly authorized by those conducting the examination.

3. Every examination paper shall expressly indicate the materials that a candidate is permitted to have with him during the examination, such as text books with notations, text books without notations, slide rules, etc.

4. Every examination paper shall expressly indicate the length of the examination and special conditions, if any, such as permission for students to work together, etc.

5. The invigilators or other persons conducting an examination may at their discretion transfer a candidate from one location in the examination room to another.

6. It is the duty of invigilators or of other persons conducting an examination to report to the Registrar in writing any apparent instance of cheating as defined in section II. 1 below.

7. Where the word "examination" is used in these regulations it shall be taken to mean "examination, test or similar evaluative exercise".

II. Cheating

1. Cheating means any dishonest or deceptive practice relating to an examination, and more particularly, but not restrictively, includes the following:

- (a) Making use of any book, paper, script, writing, drawing or anything else not expressly authorized by those conducting the examination;
- (b) Communicating during an examination with any person other than one of those conducting the examination for the purpose of obtaining for oneself or providing to another candidate unauthorized assistance in the taking of the examination;
- (c) Attempting to do any of the above;
- (d) The possession of any unauthorized book, paper, script, writing, drawing or anything else not expressly authorized by those conducting the examination will be accepted as proof of attempting to cheat.

2. A candidate who is to be charged with cheating during an examination shall be so informed by one of the persons conducting the examination, and his taking of the examination shall be suspended forthwith. One of the persons conducting the examination shall take the candidate's examination book, where there is one, as well as any other evidence relating to the charge, and the candidate shall be required to leave the examination room immediately.

3. As soon as is reasonably possible after the examination, the evidence shall be delivered to the Registrar, who, if he deems it appropriate to proceed, shall see that a written charge is prepared and transmit it to the dean of the faculty in which the candidate is registered.

4. The charge shall be made in writing, and must be dated and signed by the person who is making it. The allegations must be stated therein in such a way as to inform the candidate with precision what allegations are being made against him.

5. The dean shall send, as soon as is reasonably possible, a copy of the charge to the candidate, and shall inform the candidate of the procedures and sanctions relating to the charge. The dean shall also ask the candidate, in writing, whether he admits or denies the charge.

6. The candidate shall admit or deny the charge, in writing, within 14 days of the date of its mailing to him at the last address given by him to the university. This delay may not be extended unless the candidate could not reasonably have acted within the 14 days.

7. Where the candidate admits the charge, the Dean shall apply one of the sanctions set out in II. 14 below.

8. Where the candidate does not admit or deny the charge as provided above, the dean himself shall conduct a hearing on the charge.

9. Where the candidate denies the charge, the dean shall offer him a choice of:

- (a) a hearing by the dean himself, or;
- (b) a hearing by a committee of three persons, selected by the dean from a panel nominated by the candidate's faculty council.

Where the candidate chooses the latter form of hearing, he may choose that the committee consist of three faculty members, or two faculty members and one student, or one faculty member and two students. Where he does not make this choice, the dean shall make it.

10. The candidate has the right to be present at the hearing on the charge.

11. The decision of the dean or of the committee, as the case may be, shall be in writing and shall be a reasoned one. A copy of the decision shall be sent to the candidate.

12. The candidate and the Registrar shall have a right of appeal to Senate either against the decision of the dean or the committee, as the case may be, or against the sanction imposed. A notice of such appeal shall be made in writing to the Secretary of Senate within 21 days of the decision referred to above in the case of the candidate, and within 7 days in the case of the Registrar. These delays may be extended in exceptional cases by Senate.

13. The appeal shall be heard and decided in the manner deemed most appropriate by Senate.

14. Where a candidate admits or is found to have cheated the dean shall impose one of the following sanctions:

- (a) The imposition of a failing grade for the course related to the examination in which the cheating occurred, ineligibility to write a supplemental examination in that course, and the obligation to take and pass the equivalent of one six credit course in addition to the total number of credits required for the programme in which the candidate is registered.

- (b) The sanction provided in subsection (a) above and the obligation to take and pass the equivalent of a further one, two, or three six-credit courses in addition to the total number of credits required for the programme in which the candidate is registered.

- (c) The sanction provided in subsection (a) above, together with loss of all credits for courses taken during the year in which the cheating occurred and suspension from the university for the remainder of that year.

- (d) The sanction provided for in subsection (c) above and suspension for an additional period of not more than one year.

- (e) Loss of all credits for courses taken during the year in which the cheating occurred and expulsion from the university.

A year shall begin on September 1st and end on August 31st if the charge relates to an act occurring in the winter session, and from June 1st to May 31st if the charge relates to an act occurring in the summer session.

15. Should a candidate either admit or be found to have cheated as provided above for the second time he shall be expelled from the university.

16. A sanction of suspension or expulsion as provided above is subject to confirmation by the Rector of the university.

17. Should a charge against a candidate not be proceeded with or upheld, the dean of the candidate's faculty and the Registrar shall take the appropriate steps for the candidate to be evaluated.

18. Wherever reference is made above to a dean or any other official of the university, and the dean or other official is unable to exercise his functions, the person who is replacing him shall carry out those functions.

Plagiarism Undergraduate

I. General

1. Plagiarism, for the purposes of these regulations, includes the presentation or submission by a student of another person's work as his own.

II. Procedures and Sanctions

1. If an instructor has reason to believe that a student has committed plagiarism, as defined above, he shall immediately inform the student concerned and discuss the circumstances with him.

2. After such discussion, the instructor shall;
(a) decide that no further action is necessary, or;
(b) require that the work be resubmitted with appropriate changes, or;
(c) give the student an 'R' grade in the course for which the work was done, or;
(d) refer the matter to the chairman of the department.

3. If the instructor's decision is that set out in 2 (a) or 2(b), the matter shall be considered closed. If the decision is that set out in 2(c), the student may appeal it to the chairman of the department.

4. Should a student appeal a decision as set out in 2(c), the chairman of the department shall:
(a) uphold the award of the 'R' grade, or;
(b) cancel the 'R' grade, and decide no further action is necessary, or;
(c) cancel the 'R' grade, and require that the work be resubmitted to the instructor with appropriate changes.
The chairman's decision shall be final.

5. If the matter is referred to the chairman of the department, as set out in 2(d), and an appropriate departmental committee exists, he shall refer it to that committee.

6. If an appropriate committee exists, the committee shall review all the circumstances with the instructor and the student, and shall:
(a) decide that no action is necessary, or;
(b) require that the work be resubmitted with appropriate changes, or;
(c) decide that a formal charge shall be made against the student.
If the committee's decision is that set out in 6(a) or 6(b), the matter shall be considered closed.

7. If the matter is referred to the chairman of the department as set out in 2 (d) and no appropriate departmental committee exists, the chairman shall review all the circumstances with the instructor and the student, and shall:
(a) decide that no action is necessary, or;
(b) require that the work be resubmitted with appropriate changes, or;
(c) decide that a formal charge shall be made against the student.

If the chairman's decision is that set out in 7(a) or 7(b), the matter shall be considered closed.

8. If either the appropriate committee or the chairman of the department decides that a formal charge shall be made against the student, the chairman shall send that charge to the dean of the faculty in which the student is registered.

9. The formal charge to the dean shall be made in writing, and be dated and signed by the chairman of the department. The allegations must be stated there in such a way as to inform the student with precision what allegations are being made against him.

10. In the event that the instructor is himself chairman of the department, the dean of his faculty shall appoint another member of the department to act in his place.

11. The dean shall send, as soon as is reasonably possible, a copy of the charge to the student and shall inform the student of the procedures and sanctions relating to a formal charge. The dean shall also ask the student, in writing, whether he admits or denies the charge.

12. The student shall admit or deny the charge, in writing, within 14 days of the date of its mailing to him at the last address given by him to the university. This delay may be extended in exceptional cases by the dean, but it shall not be extended unless the student could not reasonably have acted within the 14 days.

13. Where the student admits the charge, the dean shall apply the sanction set out below.

14. Where the student does not admit or deny the charge, the dean himself shall conduct a hearing on the charge.

15. Where the student denies the charge, the dean shall offer him a choice of:

- (a) a hearing by the dean himself, or;
- (b) a hearing by a committee of three persons, selected by the dean from a panel nominated by the student's faculty council.

Where the student chooses the latter form of hearing, he may choose that the committee consist of three faculty members, or two faculty members and one student, or one faculty member and two students. Where he does not make this choice, the dean shall make it.

16. The instructor and the student have the right to be present at the hearing on the charge.

17. The decision of the dean or of the committee, as the case may be, shall be in writing and shall be a reasoned one. A copy of the decision shall be sent to the instructor and the student.

18. The student shall have the right of appeal to Senate against the decision of the dean or of the committee, as the case may be. A notice of such appeal shall be made in writing to the Secretary of Senate within 21 days of the decision referred to above. This delay may be extended in exceptional cases by Senate.

19. The appeal shall be heard and decided in the manner deemed most appropriate by Senate.

20. A student who admits that he has committed plagiarism or is found to have committed plagiarism as set out in a charge under paragraph 9 shall be expelled, or suspended from the university for the remainder of the year and not more than one additional year, such year beginning on September 1st and ending on August 31st if the charge relates to an act occurring in the winter session, and from June 1st to May 31st if the charge relates to an act occurring in the summer session, or have imposed any of the lesser penalties available to the instructor as set out in 2(b) or 2(c). All credits for courses taken during the full year as described herein shall be cancelled.

21. Should a student either admit to or be found to have committed plagiarism as set out in a charge under paragraph 9, for the second time, he shall be expelled from the university.

22. A sanction of suspension or expulsion as provided above is subject to confirmation by the Rector of the university.

23. Should a charge of plagiarism as set out under paragraph 9 against a student not be upheld, the dean of the student's faculty shall take the appropriate steps to have the work that was the subject of the charge evaluated.

24. Wherever reference is made above to a dean or any other official of the university, and the dean or other official is unable to exercise his functions, the person who is replacing him shall carry out those functions.

Student Life

Student Life

Sir George Williams has a wide variety of extra and co-curricular programmes for Day, Evening and Graduate students. The three Student Associations offer opportunities to participate in social and special interest groups, student government, training and development in radio, television and journalism. The university is a member of the Quebec University Athletic Association, and offers an extensive intercollegiate, as well as intramural, sports programme.

Responsibility for policy and budgets for the wide range of student services rests with the University Council on Student Life, which is composed of ten students, six faculty members, three administrators and a representative from the Board of Governors. The Council reports to the Rector, and through his office has the responsibility for establishing priorities in student services to meet changing student needs.

The Sir George Student Union Centre, with recently renovated facilities, is located on the south-west corner of Crescent and de Maisonneuve Boulevard. There is a coffee house with live entertainment, a snackbar, a gamesroom, a lounge and reading room, as well as a T.V. room. The Union is operated by the Day Students' Association.

Student Services

Orientation

Orientation at Sir George Williams is designed to familiarize new students with the various services and facilities available to them, and to help new students resolve any problems which may be encountered during the initial introduction to university life.

Legal Aid

A number of alumni lawyers have generously offered service to students in need of legal advice. The service does not cover legal fees which may be incurred. Appointments are made through the Dean of Students office.

Off-Campus Housing

As there are no residence facilities at this university, the Office of the Dean of Students maintains an off-campus Housing Registry for students seeking accommodations. The Registry represents listings of rooms, room and board, and apartments. The cost, location and particulars of each listing are included.

When considering accommodation, students are strongly urged to refer leases to the Dean of Students' Office before signing. Students should also be sure to obtain their own copy of a lease immediately.

Student Health and Accident Insurance

A group health and accident insurance policy is offered on a voluntary basis to *Canadian day students*. For students eligible for provincial or federal hospital and medical coverage the cost is ten dollars (\$10.00).

Foreign students must have the compulsory insurance coverage required by the university.

Foreign Students

The group health and accident insurance plan is *COMPULSORY* for all out-of-country students entering the university. The plan is compulsory as such students are not eligible for basic coverage offered under the Quebec Provincial Hospital Insurance Service. The cost of the plan will be approximately \$40.00 for single coverage and \$80.00 for married coverage.

Chaplains

The Chaplains at Sir George are recommended by their denominations and include Catholic, Anglican, Jewish, Lutheran, United Church and Orthodox appointments.

Administered under the Office of the Dean of Students, their operational expenses other than salaries come from the Student Services budget.

The Chaplains emphasize a varied approach to spiritual guidance in their preparation of programmes for the year.

Financial Aid

The Office of the Dean of Students maintains staff who are always available to help students solve individual problems or to explain existing aid programmes and regulations.

Quebec Social Allowance

A monthly allowance of \$10.00 is granted to the parent or guardian of all full-time students between the ages of 16 and 18, domiciled in the Province of Quebec.

For information, please address all correspondence to:
The Social Allowances Commission
Department of Family and Social Welfare
Parliament Buildings
Quebec City, Quebec.

Province of Quebec Loan-Bursary Plan

Provincial government assistance is available in the form of guaranteed loans and bursaries, the amounts of which vary in accordance with the financial needs of the student. It is important for the student to note that the provincial government operates on the philosophy that the primary responsibility for financing a student's post-secondary education belongs to the student and/or his family. Assistance is provided to supplement family-student resources. Further, it is important to note that to qualify for bursary assistance, the student must first accept a loan.

Deadline

Students must apply prior to September 20, 1974. Application forms may be obtained from the Office of the Dean of Students or directly from the Student Aid Service. If you applied during the 1973-74 academic year, you will automatically receive an application at the address shown on your 1973-74 form. It is not necessary for you to wait until you are registered before having your form approved by the Office of the Dean of Students.

Eligibility

The student must:

1. be a full-time student;
2. be a Canadian citizen;
3. be domiciled in Quebec and have lived here for a period of one year;
4. have completed and forwarded the application form prior to the established deadline.

NOTE: Students who have been landed immigrants for a period of one year, and have been living in Quebec for at least one year, are eligible for financial assistance, provided they show proof of intention to remain in Quebec after graduation.

University Bursaries and Scholarships

A number of university bursaries and scholarships are available for students in both the Day and Evening Divisions. A complete listing of these awards and the conditions under which they are awarded is available from the Office of the Dean of Students. All applications must be submitted prior to December 31st of each academic year.

Emergency Loan Fund

The Sir George Williams University Loan Fund is administered on behalf of both the Day and Evening Students' Associations by the Office of the Dean of Students. The fund provides students with short-term financial assistance. The maximum loan is normally \$150.00 for a period not exceeding 90 days. Students are welcome to use the fund as many times as is necessary; however, they may not have two loans outstanding at any one time.

Child Care

Child care facilities, located at 2305 St. Marc, are offered as a service to students. Enrollment of children is on a first-come first-served basis. Full-time service comprises 20 hours or more per week at \$30 per month; part-time comprises fewer than 20 hours per week at \$15 per month. Fees are subject to change. Use of the Centre is limited to those hours when parents are in class or library. The service is offered for children aged 2 to 5 only.

Health Services

The University Health Centre is located at 2145 Mackay Street. Staffed with registered nurses, the centre can refer students to specialists and is equipped to give first-aid treatment for minor injuries and handle emergencies. Appointments with a doctor may be made by calling 879-4010.
Hours: 8:30 a.m. to 10 p.m. Monday-Friday

Dean of Students

Magnus Flynn, B. Com.

Assistant Deans

Jack Hopkins, B.A., M.S.W.
Douglas Insleay, M. Sc.

Assistant to the Dean of Students

Joan Richardson, B.A.

Financial Aid Officer

David Ramsay, B.A.

Administrative Assistant

Joe Novak, B.A.

Guidance Services H-440**Counselling - 879-2879**

Personal, educational, vocational.
Individual appointments and group programmes.

Guidance Information Centre - 879-4443

Academic and career planning information and assistance.

Reading and Learning Skills - 879-2879

Effective reading courses and learning skills sessions.

Canada Manpower Centre - 283-5177

Job placement and career counselling.
Full time, summer, temporary.
2020 Mackay St.

Personnel*Director*

J.A. Sproule, B.A., M. Ps. Sc.

Assistant Director

F.W. Denton, M.A.

Counsellors

R.C. Boncore, B.A., M. Sc.

J.C. Gellert, B.A., M. Sc.

J. Goldner, B.A., B. Com., B.S.W.

D.P. Kredl, B.A., M. Ed.

D.M. Stehouwer, B.A., M. Ed.

Counsellors, Evening Staff

B. Bultz, M.A.

J.G. Eaton, B.A., M.Ed.

E. Gutbrodt, B.A., Ph. D.

S. B. Montin, B.A., Ed. M.

J. Skene, B.A., M. Ed.

P. Wright, B. Sc., M.A.

Consultant Psychiatrist

G. Da Silva, M.D.

Guidance Librarians

L. Stephens, B.A. M.L.S.

V. Cummins, B.A., M.L.S.

Reading and Study Skills Counsellor

D.P. Osborne, B.A.

Canada Manpower Counsellors

D. Biggers, B.A.

O. Rayson

Athletics

2160 Bishop Street - 879-5840

Director of Athletics

George Short, B.P.E., B.Ed., M.P.E.

Intercollegiate Sports

Joseph Roboz, B.A., D.P.Ed.

Women's Sports

Jane Tanner

Intramural Sports

Bob Philip, B.A., B.Ed.

Sports Information

Mike Hickey, B.A.

Athletic Trainer

Gary Cummings, B.Sc.

Intercollegiate Sports

The university participates in the Quebec University Athletic Association and the Canadian Intercollegiate Association. Both men and women may compete on the varsity level in many different activities. The university has developed national calibre athletes in hockey, basketball, wrestling, track and swimming.

Intramural and Recreational Activities

Intramural hockey is the most popular activity, but modern dance, karate, floor hockey and special fitness classes are also very popular. The aim of the department is to offer a programme for everyone. New activities can be initiated by contacting the Athletics Office.

Y.M.C.A. Memberships

The department offers a special reduced membership to the downtown Y.M.C.A. Students who join may use these facilities on an individual basis. Students must register at the Athletics Department for this reduced membership.

Facilities

The university offers some of its various programmes at the downtown Y.M.C.A. Other facilities used for Intramural and recreational programmes are H.M.C.S. Donnacona, Birks Hall and the McGill Winter Stadium. Varsity basketball can be viewed at the Loyola Complex and hockey at the Verdun Auditorium.

Cheerleaders and Booster Club

For those who are especially enthusiastic, we have a cheerleading team and booster club activities.

Student Managers and Assistants

If you enjoy working with teams and would like to be a student manager or assistant, contact the department as soon as you register.

Eligibility

Everyone is eligible for intramural and recreational activities, but only full-time day students with satisfactory academic performance may compete in intercollegiate sports. Evening students may participate on junior varsity teams.

Responsibility of University

It is the responsibility of the student to have proper accident and medical insurance.

Registration and Athletic Information

Students may register for all sports at the department office - 2160 Bishop Street. Athletic notice boards are situated throughout the buildings and the student newspapers usually cover all Georgian events.

Prizes

Graduation Prizes

The Birks Medal awarded annually, when merited, by Henry Birks & Sons (Montreal) Ltd., to the highest ranking graduating student receiving the degree of Bachelor of Arts.

The Mappin Medal awarded annually, when merited, by Mappin's Ltd. of Montreal to the highest ranking graduating student receiving the degree of Bachelor of Science.

The Frosst Medal awarded annually, when merited, by Charles E. Frosst & Co., to the highest ranking graduating student receiving the degree of Bachelor of Commerce.

The Chait Medal awarded annually, when merited, to the highest ranking graduating student receiving the degree of Bachelor of Engineering

The Alfred Pinsky Medal awarded annually, when merited, to the highest ranking graduating student receiving the degree of Bachelor of Fine Arts.

The Computer Science Medal awarded annually, when merited, to the highest ranking graduating student receiving the degree of Bachelor of Computer Science.

The Board of Governors Medals for Creative Work in the Arts awarded annually, when merited, by the Board of Governors of the university to students giving evidence of independent work of outstanding ability in the following categories: visual arts; literary arts; auditory arts; performing arts.

Governor-General's Medal. Presented by His Excellency the Governor-General of Canada, awarded annually to the graduating student showing the highest achievement in the field of English language and literature.

The J.W. Bridges Medal for Psychology awarded annually, when merited, to the graduating student with the highest standing in Psychology. This prize was established by his colleagues of the faculty to honour the outstanding contribution of Dr. J.W. Bridges, Professor Emeritus and former Chairman of the Department of Psychology.

The W.R. Fraser Medal for Philosophy awarded annually, when merited, to the graduating student with the highest standing in Philosophy. This prize was established by his colleagues to honour the outstanding contribution of the late W.R. Fraser, Professor Emeritus, and former Chairman of the Department of Philosophy.

The Sun Life Prize in Economics awarded annually, when merited, by the Sun Life Assurance Company of Canada, to the graduating student with the highest standing in the Economics honours or major.

The Everett C. Hughes Medal awarded annually, when merited, to the graduating student with the highest standing in Sociology. This prize was established by his colleagues to honour the outstanding contribution of Professor Everett C. Hughes to the development of Sociology in Canada.

The Canadian International Paper Company Prize in Biology, a cash prize of \$100.00 to be awarded annually, when merited, to the graduating student with the best record of work in the field of Biology.

The Ross Medal awarded annually, when merited, by Dr. Howard I. Ross to the graduating student with the highest standing in the Accountancy major.

Merit Award, The Society of Chemical Industry-Canadian Section awarded annually, when merited, to the student majoring or honouring in Chemistry with the highest standing in the final year of this programme.

The Corporation of Professional Chemists of Quebec Prize awarded annually, to the graduating student with the highest standing in any one of the programmes accepted by the Corporation of Professional Chemists of Quebec.

Association of Alumni Award awarded annually, when merited, to the graduating student, who, in the opinion of the Scholarship Committee, has by his activities, achievements, and interest, during his term at the university, won the outstanding commendation and respect of his fellows and of the faculty.

First Graduating Class Award. The first graduating class of the Faculty of Arts, Science and Commerce, known as the Guinea Pig Club, a name symbolic of their pioneering experience.

makes a presentation when merited to a member of the university community who is adjudged to have made the most outstanding new contribution, either academic or extra-curricular, to the student life of the university.

The Robert C. Rae Prize in Applied Social Science awarded annually, when merited, to the graduating student with the highest standing in Applied Social Science.

The Prize for Geography awarded annually, when merited, to the graduating student with the highest standing in Geography.

The Medal for Geology awarded annually, when merited, to the graduating student with the highest standing in Geology.

The Prize for French awarded annually, when merited, to the graduating student with the highest standing in French.

The Prize for History awarded annually, when merited, to the graduating student with the highest standing in History.

The Prize for Humanities of Science awarded annually, when merited, to the graduating student with the highest standing in Humanities of Science.

The Medal for Mathematics awarded annually, when merited, to the graduating student with the highest standing in Mathematics.

The Prize for Modern Languages awarded annually, when merited, to the graduating student with the highest standing in Modern Languages.

The Medal for Physics awarded annually, when merited, to the graduating student with the highest standing in Physics.

The Herbert F. Quinn Medal for Political Science awarded annually, when merited, to the graduating student with the highest standing in Political Science.

The Boyd Sinyard Prize in Religion awarded annually, when merited, to the graduating student with the highest standing in Religion.

Undergraduate Prizes

The Chemical Institute of Canada awarded annually to the best student in the penultimate year entering the final year and majoring in Chemistry.

Alvin J. Guttman Scholarship: \$100 annually - to a student from Africa or Asia.

Henry F. Hall Scholarship: awarded annually.

Maynard Metcalf Scholarship: \$100 awarded on the basis of scholastic achievement in the preceding year to a day student.

The Montreal Economics Association Award awarded annually to the student in the penultimate year with the highest standing in Economics.

Hebrew Culture Organization of Canada Prizes, Samuel Kizell Memorial Prize of \$50.00 awarded annually, for excellence in the study of the Hebrew Language.
An additional prize of \$50.00 awarded annually, for excellence in the study of the Hebrew language.

Prix du Département de Français
Prix du Consul général de Suisse
Prix du Consul général de Belgique
Prix du Consul général de France

University Awards Scholarships and Bursaries

Information on all aspects of financial aid may be obtained from the Office of the Dean of Students.

Montreal Hi-Y Scholarship: \$150 per year - to a Montreal High School graduate who has been an active member of a Hi-Y Club in his or her final year.

Birks-Beaton Memorial Scholarship: \$150 a year to a YMCA Fellowship student who has completed at least one year at SGWU.

John W. Ross Memorial Scholarship: \$150- to a YMCA Fellowship student - in the day division.

Lucille Irvine Memorial Scholarship: awarded annually on the recommendation of the Chairman of the Psychology Department.

P.T.R. Pugsley Memorial Scholarship: \$150 annually - financial need and scholastic ability.

Weldon Scholarship: awarded annually to a student in the Faculty of Engineering.

The late Captain Melville Greenshields Scholarship awarded to a student of Art.

Henry I. Chinks Memorial Scholarship or Bursary: awarded to an evening student of Chemistry on the basis of financial need and academic standing.

Joseph Gilbert Joyce Memorial Scholarship or Bursary: awarded annually to an evening student on the basis of financial need and academic standing.

F.B. Walls Scholarships and Bursaries: a fund of \$1,000 per year, awarded on the basis of financial need and academic standing.

Marsh and McLennan Centennial Scholarship or Bursary: awarded annually on the basis of financial need and academic student standing to a student who has completed at least one year at SGWU; preference to a Commerce and Administration student.

Hugh Millar Memorial Scholarship Fund: \$1,000 awarded annually to Engineering students on the basis of financial need and academic achievement.

National Council of Jewish Women (Montreal) Scholarship: \$100 awarded annually on the basis of financial need and academic standing to an evening student in the Faculty of Arts.

P.E.O. Scholarship: \$50 awarded annually to a female student on the basis of financial need and academic achievement.

Consolidated Bathurst Limited Entrance Scholarship: \$500 awarded annually, tenable for four years, awarded to an entering day student; preference to the son, daughter or legal ward of a permanent or deceased employee of the company.

Myer F. Pollack Scholarships: awarded annually to needy, worthy students in the Faculty of Engineering.

Nathan H. Messer Scholarships: These two scholarship-bursaries shall be awarded annually to needy, worthy students entering their final year and majoring or honouring in Accountancy,

by the University Scholarship Committee following consultation with the Chairman of the Department of Accountancy.

Affiliated Factors Corporation Bursary: \$100 awarded annually to a Commerce student on the basis of financial need and academic standing.

Ethel Campbell - P.E.O. Memorial Bursary: awarded to assist a female student in financing her university programme.

Knights of Pythias (Syracuse Lodge No. 9) Bursary Fund: primarily established to provide assistance to a student during the academic year.

Royal Albert Lodge Bursary: \$400 for scholarships and bursaries; preference to:
a) children of members of the Royal Albert Lodge;
b) children of members of other Masonic Lodges.

St. Andrews Society of Montreal Bursary: \$200 annually to a needy student of Scottish blood or descent.

St. Patrick's Society of Montreal Bursary: awarded annually on the basis of financial need and passing grades.

John Crawford (Administrative Management Society) Bursary: \$100 awarded annually to an evening Commerce and Administration student.

Birks Family Foundation Bursaries: Number and amount depend on fund available from the Foundation, may be renewed annually till graduation.

Theodore Ronis Memorial Bursary: \$50 awarded annually; preference to a male Commerce and Administration student.

Steel Company of Canada Bursary: four-year value of \$2,000 provided satisfactory academic standing maintained, awarded to a student with at least 66% in high school leaving examinations.

Birks-Beaton Memorial Bursary: \$150 awarded annually to a YMCA Fellowship student in first year at SGWU.

S.H. McNeilly Bursary: \$75 awarded annually to a second-year evening student employed by the CPR, based upon financial need and academic achievement.

Walter Stenhouse Bursary: \$75 awarded annually to a fourth year Arts student upon recommendation of the Department of Fine Arts.

IBM-Thomas J. Watson Memorial Bursaries: fund of \$1,000 annually to provide assistance to needy students of good academic standing.

National Council of Jewish Women of Canada Bursary-Loans: made according to financial need. Students expected to undertake to repay grants after graduation.

Sir George - St. Vincent Bursary: awarded annually to a needy and worthy student from St. Vincent.

Joel Birenbaum Memorial Bursary: awarded annually to a needy and worthy Science student.

Ela Moll Memorial Bursary: \$50 awarded annually to a needy and worthy second-year student in the Department of Fine Arts, upon recommendation of the Department of Fine Arts.

Engineering Undergraduate Associate Educational Fund: \$150 awarded annually to a needy and worthy Engineering student.

Uniroyal Limited Aid-to-education Programme: awarded annually on the basis of financial need to a student who has completed at least two years at SGWU.

Awards Made Outside of the University

In most cases awards of a national nature are based on high school leaving grades. As Quebec is the one province in Canada with a compulsory CEGEP programme CEGEP grades will be considered wherever possible.

Canadian Federation of the Blind Bursary: Bursary assistance is awarded to a registered blind person or to the child of a registered blind parent or parents. In awarding this bursary preference will be given to members of the Canadian Federation of the Blind, and in particular, to those persons domiciled in the Province of Quebec.

Mr. Gordon L. McGilton
Corresponding Secretary
Montreal Branch
Canadian Federation of the Blind
1172 St. Matthew Street
Montreal, Quebec

Canadian-Italian Business & Professional Men's Association: The Canadian-Italian Business & Professional Men's Association created in 1960 a trust fund to assist students of Italian origin or descent to continue their university studies. Applications must be completed before May 31st.

Mr. Dante Panni Chairman
Trust Fund Committee
Canadian-Italian Business &
Professional Men's Association
892 Crémazie West
Montreal 303, Quebec

Harry F. Bennett Educational Fund: To make loans to deserving students who need financial assistance to enable them to study Engineering sciences at university level and who have proved themselves by successfully completing their first year in Engineering or the equivalent.

The Engineering Institute of Canada
2050 Mansfield Street
Montreal, Quebec

Imperial Oil Higher Education Awards: Imperial Oil Limited offers annually free tuition and other compulsory fees to all children or wards of employees and annuitants who proceed to higher education courses. Each award is tenable for a maximum of four years. To be eligible, a student must attain an average mark of 70% or higher in the appropriate secondary school examinations in the subjects required for admittance.

The Secretary
Committee on Higher Education
Imperial Oil Limited
111 St. Clair Avenue West
Toronto 7, Ontario

The Building Trades Joint Committee Scholarship: A five year scholarship is available to a student entering into the Faculty of Engineering. This award covers full tuition fees for five years subject to a satisfactory academic standing. Applicants must be the sons of employees or employers engaged in the construction industry in the District of Montreal.

Mr. Armand Brisebois
Personnel and Office Manager
The Construction Industry Joint
Committee of the Region of Montreal
3530 Jean Talon Street West
Montreal, Quebec

Leonard Foundation Scholarships: Applications for scholarships must be filed before March 31st

of each year. Preference in the selection of students for scholarships shall be given to the sons and daughters of clergymen, school-teachers, Officers, Non-Commissioned Officers and men (active or retired) who have served in Her Majesty's Military, Naval or Air Forces, graduates of the Royal Military College of Canada, members of the Engineering Institute of Canada, members of the Mining and Metallurgical Institute of Canada.

Mr. R.B. White
Senior Trust Officer
Canada Permanent Trust Company
253 Bay Street
Toronto 1, Ontario

Provincial Association of Protestant

Teachers Loan Fund: The student teacher must apply each year, before May 31st preferably, or prior to September 10th. Interest is 6% after the recipient has been teaching for one year. Priority will be given to students applying for a loan for the first time, however, and an interview with the Professional Loans Committee is required. No loans will be given without consultation with High School Principals and/or Guidance Officers or (in the case of a second application) with the authorities of the teacher-training institution concerned.

Provincial Association of
Protestant Teachers of Quebec
Professional Loan Fund
2100 St. Mark Street
Montreal, Quebec

Faculty of Arts

Faculty of Arts

Dean

Ian L. Campbell

Assistant Dean (Priorities)

Muriel Armstrong

Assistant Dean (Curriculum)

Michel Despland

Assistant Dean (Students)

Gerald Mahoney

Assistant to the Dean

Mona Osborne

Curriculum for the Degree of Bachelor of Arts

Admission Requirements

General admission requirements are listed on page 38.

Specific requirements for admission to the various programmes leading to the degree of Bachelor of Arts are listed below. Students lacking one or more of these prerequisites may

be admitted, but they must include these courses in their undergraduate programmes towards which they will be credited.

Programme titles refer to honours, majors and joint major components where these exist.

Applied Social Science Geography Urban Studies	One full course in Mathematics at the Collegial level or the equivalent.	Art History (Joint Major Component) Moving Pictures (Joint Major Component) Theatre Arts (Joint Major Component) Visual Arts (Joint Major Component)	One full course in English literature at the Collegial level (in addition to compulsory Collegial language and literature courses).
Early Childhood education	No official prerequisites but it is recommended that students take at the Collegial level one full course in each of Psychology, Sociology and Philosophy.		One full course in Collegial French or the equivalent.
English	Compulsory Collegial language and literature courses (two full courses).	French	One full course in English literature at the Collegial level (in addition to compulsory Collegial language and literature courses). One full course in Collegial French.
Psychology	One full course in Mathematics and Biology 001 (CEGEP 301 or 921) and Psychology 011 (CEGEP 101 and 201).	German Greek Hebrew Italian Latin Russian Spanish	At least one, and preferably two, full courses in the language(s) to be studied.
Social Psychology	One full course in Mathematics and Psychology 011 (CEGEP 101 and 201).	Mathematics	Mathematics 002, 003, 004, 005 (CEGEP 101, 103, 105, 203).

NOTE: One full course represents two term courses.

Asian Studies	No requirement.
Canadian Politics	
Canadian Studies	
Economics	
Education (Joint Major Component)	
History	
International Affairs	
Judaic Studies	
Linguistics	
Music	
Philosophy	
Political Philosophy	
Political Science	
Religion	
Russian Studies	
Science and Human Affairs	
Social Welfare	
Sociology and Anthropology	
Urban Studies	
Women's Studies	

Note: Quebec universities have agreed to admit to the appropriate undergraduate programme any collegial student successfully completing one of the above programmes provided of course that resources are sufficient. When all such qualified students have been admitted, the university reserves the right to admit students who may not have all the specified prerequisites according to its own criteria.

Degree Requirements

Definition of Credit

Up to and including the academic year 1973-74, degree programmes have been expressed in terms of courses, with one credit being applied to a "full course" (normally two terms) and one half-credit being applied to a "half-course" (normally one term).

Starting in 1974-75, in accordance with the recommendations of the Quebec Council of Universities, the credit-base is being modified to take into account the total activity of the student. Students preparing for the degree of Bachelor of Arts will take a minimum of 90 credits. Each credit represents, for the average student, a minimum of 45 hours of work spread across lectures, conferences, laboratories, studio or practice-periods, tests, examinations and personal work.

Graduation with the degree of Bachelor of Arts requires:

1. Successful completion of a programme of concentration in the form of a major or an honours programme as listed below.
2. A maximum of 48 credits at the 200-level out of the 90 credits required for the degree.
3. Students taking a joint major, an interdisciplinary major, a departmental major, or a departmental honours may take no more than 66 of their 90 course-credits in one department, and no more than 78 in one division (i.e. Humanities Division or Social Sciences Division).
4. Students taking an interdisciplinary honours programme or a combined honours programme must take at least 18 course-credits outside of their division, and outside of their departments of concentration if the respective departments are in different divisions.

Concentration Requirement

Since the CEGEP programme is designed to give all students the opportunity to explore different fields and thus acquire a broad general basis for further study, the undergraduate programme in Arts requires some degree of specialization, according to the interests and capacities of the student. The two main forms of specialization are the major, which requires that the student be successful in a prescribed pattern of courses, and honours, which involves not only a greater degree of concentration, but also a high level of academic performance.

In order to graduate, therefore, a student must have completed one of the following types of programmes: a joint major programme (with two components); an interdisciplinary major programme; a departmental major programme; a combined honours programme; an interdisciplinary honours programme; a departmental honours programme.

Prior to registration, students will be required to select one of the types of programmes outlined above. In the case of honours, students will register upon entry in an honours programme, but their acceptance as honours students will depend on their performance during their first year. Students failing to meet requirements for honours standing will proceed as majors.

The requirements of selecting upon entry a major or honours programme should not be thought of as being necessarily a final commitment. The Arts programme is designed to be flexible enough to allow for changes of orientation, subject, of course, to limitations in the case of certain programmes in great demand.

Major and Joint Major Programmes

Major Programmes are listed beginning on page 78.

Joint Major Programmes are listed beginning on page 84.

Honours Programmes are listed beginning on page 87.

Programme Advisors

Applied Mathematics (Optimization)	J. Senez
Applied Social Science	R. McDonald
Art History	D. Andrus
Art History and Studio Art	D. Andrus
Art Education	S. Horner
	L. Sherman
Asian Studies	L. Singh
Canadian Politics	H. Shulman
Canadian Studies	R. Burns
Comparative Political Studies	K.J. Herrmann
Economics	P. Miles
Early Childhood Education	D. White
Education	H. Entwistle
English	E. Pechter
Fine Arts	P. Cohen
	S. Horner
	N. Springford
	J. Locke
	C. Lévy
French	H.A. Clinch
Geography	A.M. Ketter
German	C. Gabriel-Lacki
Graphic Design	F. Mulvey
	P.F. Widdows
Greek	J.A. Macaluso
Hebrew	E.E. McCullough
History	P.J. Arnopoulos
International Affairs	J.A. Macaluso
Italian	J. Siegal
Judaic Studies	P.F. Widdows
Latin	C.R. Barton
Linguistics	J. Senez
Mathematics	J. Locke
Moving Pictures	P. Cohen
Music	P. Germain
Philosophy	H. Quinn
Political Science	H. Hutter
Political Philosophy	J. Chaikelson
Psychology	A. Hilton
	N. Taylor

Religion	D.M. Miller
Russian	T. Sidorow
Russian Studies	I. Smith
Science and Human Affairs	D.W. Chambers
Social Psychology	T. Gray
Social Welfare	R. McDonald
Sociology	A. Synnott
Spanish	J.D. Grayson
Statistics	T. Dwivedi
Theatre Arts	N. Springford
Undergraduate Scholars Programme	D.M. Miller
Urban Studies	R.W. Bryant
Visual Arts	G. Coward
	D. Jones
	J.I. Smith
	B. Wainwright

A "major" is an approved *sequence* of courses. It includes a minimum of 42 credits and a maximum of 60. The concentration may include certain approved courses in other closely related fields. The term "major" as used by Sir George Williams University implies that the student has followed, within the requirements for the degree, a planned programme in a specialized field.

Requirements for Majors

Applied Social Science

The following courses, in an approved sequence, constitute a major in Applied Social Science:

A. First Year: Applied Social Science N-212

Third Year: Applied Social Science N-400

18 credits from the following taken in sequence over the three years:

Applied Social Science N-351*, N-413, N-431, N-451*, N-452*, N-441*, N-421*, N-471.

B. Psychology N-271

6 credits from Sociology area (see page 187).

C. 18 additional credits from Sociology and Psychology as follows:

6 credits from Sociology Area III (see page 187). Students may add to this 6 credits from Sociology Areas III or IV.

6 additional credits from Psychology N-422, N-428, N-438, N-442, N-452, N-454. (From year to year, substitutions will be allowed from 'Selected Problems' sections in Psychology, with the approval of the Chairman of the Department.)

NOTE: Psychology N-271 must be taken in the first year by students with a collegial course in Psychology (001 or equivalent). In any case it must be taken no later than the second year.

The requirements of selecting upon entry a major or honours programme should not be thought of as being necessarily a final commitment. The Arts programme is designed to be flexible enough to allow for changes of orientation, subject, of course, to limitations in the case of certain programmes in great demand.

Major and Joint Major Programmes

Major Programmes are listed beginning on page 78.

Joint Major Programmes are listed beginning on page 84.

Honours Programmes are listed beginning on page 87.

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	L. Sherman
Asian Studies	L. Singh
Canadian Politics	H. Shulman
Canadian Studies	R. Burns
Comparative Political Studies	K.J. Herrmann
Economics	P. Miles
Early Childhood Education	D. White
Education	H. Entwistle
English	E. Pechter
Fine Arts	P. Cohen
	S. Horner
	N. Springford
	J. Locke
	C. Lévy
French	H.A. Clinch
Geography	A.M. Ketter
German	C. Gabriel-Lacki
Graphic Design	F. Mulvey
	P.F. Widdows
Greek	J.A. Macaluso
Hebrew	E.E. McCullough
History	P.J. Arnopoulos
International Affairs	J.A. Macaluso
Italian	J. Siegal
Judaic Studies	P.F. Widdows
Latin	C.R. Barton
Linguistics	J. Senez
Mathematics	J. Locke
Moving Pictures	P. Cohen
Music	P. Germain
Philosophy	H. Quinn
Political Science	H. Hutter
Political Philosophy	J. Chaikelson
Psychology	A. Hilton
	N. Taylor

Religion	D.M. Miller
Russian	T. Sidorow
Russian Studies	I. Smith
Science and Human Affairs	D.W. Chambers
Social Psychology	T. Gray
Social Welfare	R. McDonald
Sociology	A. Synnott
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Theatre Arts	N. Springford
Undergraduate Scholars Programme	D.M. Miller
Urban Studies	R.W. Bryant
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	D. Jones
	J.I. Smith
	B. Wainwright

A "major" is an approved *sequence* of courses. It includes a minimum of 42 credits and a maximum of 60. The concentration may include certain approved courses in other closely related fields. The term "major" as used by Sir George Williams University implies that the student has followed, within the requirements for the degree, a planned programme in a specialized field.

Requirements for Majors

Applied Social Science

The following courses, in an approved sequence, constitute a major in Applied Social Science:

A. *First Year:* Applied Social Science N-212
Third Year: Applied Social Science N-400

18 credits from the following taken in sequence over the three years:

Applied Social Science N-351*, N-413, N-431, N-451*, N-452*, N-441*, N-421*, N-471.

B. Psychology N-271

6 credits from Sociology area (see page 187).

C. 18 additional credits from Sociology and Psychology as follows:

6 credits from Sociology Area III (see page 187). Students may add to this 6 credits from Sociology Areas III or IV.

6 additional credits from Psychology N-422, N-428, N-438, N-442, N-452, N-454. (From year to year, substitutions will be allowed from 'Selected Problems' sections in Psychology, with the approval of the Chairman of the Department.)

NOTE: Psychology N-271 must be taken in the first year by students with a collegial course in Psychology (001 or equivalent). In any case it must be taken no later than the second year.

Asian Studies (See Centre for Interdisciplinary Studies)

Students electing this programme proceed to a major based on an approved 60 credit sequence that includes five core courses (Group A) and a range of five electives (Groups B & C).

A. Interdisciplinary Studies N-495	Seminar in Asian Studies
History N-261	Historical and Cultural Background of Modern Asia
Political Science N-355	The Policies of Developing Areas - Asia
One of: Religion N-311	The Religions of India, Ceylon, and Southeast Asia
Religion N-312	The Religions of China and Japan
Religion N-313	Islam
Anthropology N-463	Cultures of India and China
B. 18 credits from the following: Arabic N-411 Economics N-440 Economics N-448*	Introduction to Arabic Economic Development Studies in Asian Economic Growth
History N-361	History of South and Southeast Asia
History N-362	Modern China
History N-461	Advanced Study in Asian and African History
Music N-343	Introduction to Non-Western Music
Political Science N-485	Diplomacy and Foreign Policy
Religion N-311	The Religions of India, Ceylon and Southeast Asia
Religion N-312	The Religions of China and Japan
Religion N-313	Islam

C. 12 credits from courses with Asian content chosen in consultation with the Asian Studies Major Advisor.

Canadian Politics

The following courses, in an approved sequence, constitute a major in Canadian Politics:

- A. Political Science N-231, N-330, N-335*, N-337, N-436*, N-437*.
- B. 12 additional credits in Political Science in theory, comparative politics, or international relations.
- C. 6 additional credits in a related discipline with Canadian content or in Political Science. The courses must be approved by the Department of Political Science.

Canadian Studies (See Centre for Interdisciplinary Studies)

Students electing this programme proceed to a Major in Canadian Studies based on an approved sequence of courses which includes three core courses (Group A) and a range of electives (Groups B & C).

A. English N-244 French N-211	Canadian Literature Langue II et composition élémentaire
History N-221	History of Canada
B. At least 18 credits from the following: English N-344 English N-448*	Modern Canadian Literature Special Studies in Canadian Literature
Art N-249 Art N-444	Canadian Sculpture and Architecture The Arts in Canada
Music N-345*	Folk Music of North America
French N-331	Littérature et culture québécoises
French N-431*	Le roman québécois contemporain La poésie québécoise contemporaine
French N-432*	Théâtre québécois
French N-465*	
Geography N-341	Geography of Canada
Religion N-363	Religion in Canada

Economics N-434	Economic History of Canada
Economics N-446*	The Economic Development of Quebec
Education N-442*	Education in Canada
History N-321	British North America: 1760-1873
History N-322	Modern Canada: 1840 to the Present
History N-323	French Canada to 1840
History N-324	Quebec: 1840 to the Present
History N-421	Advanced Study in Canadian History
Political Science N-330	Government and Politics of Canada
Political Science N-335*	Quebec Politics
Political Science N-436*	Canadian Federalism
Political Science N-437*	Canadian External Affairs
Sociology N-445*	Intergroup Relations in Canada
Sociology N-470*	Canadian Social Structure
Sociology N-471	Quebec Society
Anthropology N-462	American Indian

C. 12 credits chosen in consultation with the coordinator of the Canadian Studies Programme.

D. Interdisciplinary Studies N-411 Seminar in Canadian Studies.

Comparative Political Studies

The following courses, in an approved sequence, constitute a major in Comparative Political Studies:

A. Political Science N-240, N-458.

B. 24 credits chosen from Political Science N-330, N-333, N-350, N-351, N-353, N-355.

C. 12 credits with relevant comparative or area studies content from Political Science or other departments. The courses must be approved by the Department of Political Science.

Early Childhood Education

The following courses, in an approved sequence, constitute a major in Early Childhood Education:

Education N-202, N-215, N-261, N-421, N-453*, N-461, Art N-251, Music N-421.

6 credits chosen from Education N-430, N-441, N-451.

6 credits chosen from Education N-415*, N-416*, N-417*.

3 credits chosen from Psychology N-212*, N-213*, N-214*, N-215*, N-302*, N-304, N-305* in consultation with the Department.

NOTE: Every student unless specifically exempted by the director of the programme is required to undertake an internship in the third year as well as internships or workshops in Education N-202, N-215, N-261 and Music N-421.

Economics

The following courses, in an approved sequence, constitute a major in Economics:

Economics N-209* and N-210*, or N-212.

Economics N-311 or N-312.

Economics N-316 or N-318.

6 credits in economic history chosen from Economics N-330, N-430, N-434, N-438.

Economics N-375*, or Quantitative Methods N-243* and N-244*, or equivalent.

The remainder of 42 credits to be chosen from all other Economics courses.

English

The following courses, in an approved sequence, constitute a major in English:

I. 6 credits chosen from either A or B.

A. English N-241, N-260, N-262, N-263, N-267.

A student may substitute for one of the requirements in this section one of N-225, N-226, N-227.

B. English N-281, N-282, N-283, N-287, N-231*, N-232*.

II. 18 credits chosen from English N-333, N-334, N-335, N-336, N-337, N-460, N-466.

III. 6 credits chosen from English N-374, N-375, N-376.

IV. 6 credits chosen from English N-244, N-343, N-344, N-348, N-440.

V. 18 additional credits in English, at the '300' and '400' level excluding N-311 (411).

French

The following courses, in an approved sequence, constitute a major in French:

French N-214 or N-310, N-241, N-321, N-331.

24 credits in French at the '300' or '400' level chosen in consultation with the Department.

Geography

The following courses, in an approved sequence, constitute a major in Geography:

Geography N-211, N-260*, N-261*, N-271, N-362*, N-391*.

Geography N-341 or N-343.

12 additional '300' or '400' level credits in Geography.

German

The following courses, in an approved sequence, constitute a major in German:

German N-241, N-311, N-354, N-452, N-453, N-455.

12 credits chosen from German N-451, N-456*, N-457*, N-458*, N-459*.

It is recommended that a student majoring in German take 6 additional credits chosen from Linguistics N-221, Philosophy N-211 or N-361, Religion N-443, History N-210, Political Science N-351, Geography N-423, Latin N-210 or N-240.

History

The following courses, in an approved sequence, constitute a major in History:

First Year: History N-210 and 6 additional credits at the '200' level.

Second Year: 12 credits in History, 6 of which may be at the '200' level.

Third Year: 12 credits in History and 12 credits in related disciplines or in History as approved by the Department. At least 6 of the History credits must be at the '400' level.

NOTE: Students must include 6 credits in Canadian History among their electives.

Humanities of Science (See Science and Human Affairs)

Indo-European Linguistics

The following courses, in an approved sequence, constitute a major in Indo-European Linguistics:

Linguistics N-221, N-421, N-431, N-441, N-490, N-491.

English N-460 or Spanish N-412 or English N-318.

Greek N-241 or any 6 credits in Greek at the '400' level.

Latin N-240 or N-341 or any 6 credits in Latin at the '400' level.

International Affairs

The following courses, in an approved sequence, constitute a major in International Affairs:

A. Political Science N-270, N-385, N-437*, N-481, N-483.

B. 21 credits with relevant international content in Political Science or from other departments. The courses must be approved by the Department of Political Science.

Judaic Studies

The following courses, in an approved sequence, constitute a major in Judaic Studies:

A. Religion N-211 or N-213.

B. Religion N-301, N-326, N-327, N-328, N-329, N-497, N-498.

C. Hebrew N-210 or N-215 or the equivalent.

D. Religion N-361 or N-362 or N-313.

E. At least 9 additional credits at the '300' or '400' level.

Mathematics

The following courses, in an approved sequence, constitute a major in Mathematics:

Mathematics N-241, N-261, N-271*, N-281,

N-291*, N-361, N-391*, and 15 additional credits in Mathematics, approved by the Department.

NOTE: Students who major in Mathematics must register by November 1 of each year with the Department of Mathematics.

Applied Mathematics (Optimization)

The following courses, in an approved sequence, constitute a major in Applied Mathematics (Optimization):

Mathematics N-241, N-261, N-271*, N-281, N-291*, N-312*, N-331, N-351*, N-431, and 6 additional credits in Mathematics or related fields approved by the Department of Mathematics.

NOTE: Students who major in Applied Mathematics must register by November 1 of each year with the Department of Mathematics.

Music

The following courses, in an approved sequence, constitute a major in Music:

- A. Music N-235 or equivalent.
- B. Music N-231* or N-232, N-321, N-335, N-341.
- C. The remainder of 60 credits to be chosen from '300' and '400' level courses in Music in consultation with the Department.

NOTE: A student granted exemption from Music N-235 will substitute another 6 credits in Music chosen in consultation with the Department.

Philosophy

The following courses, in an approved sequence, constitute a major in Philosophy:

First Year: Philosophy N-210 or N-211.
6 additional credits chosen from Philosophy N-221, N-231, N-273.

Second Year: One of Philosophy N-301, N-401 N-403.
12 credits in Philosophy, six of which must be at the '300' or '400' level.

Third Year: One of Philosophy N-369, N-405, N-409.
6 credits in Philosophy at the '300' or '400' level.

Political Philosophy

The following courses, in an approved sequence, constitute a major in Political Philosophy:

- A. Political Science N-311, N-320, N-413; Philosophy N-210 or N-211.

- B. 24 credits chosen from: Philosophy N-369, N-372*, N-374*, N-376*, N-401, N-407; Political Science N-415; Sociology N-430.

Political Science

The following courses, in an approved sequence, constitute a major in Political Science:

- A. Political Science N-320 or N-311, N-240, N-270, N-330.

- B. 6 credits from each of the four areas in Political Science.

NOTE: For a breakdown of the Areas see section on departmental offerings.

Psychology

The following courses, in an approved sequence, constitute a major in Psychology:

- Psychology N-271 or N-273, N-412.

30 credits chosen from among Psychology N-241 or N-242, N-375*, N-413, N-421, N-422, N-428, N-432, N-434, N-438, N-442, N-452, N-454, N-461, N-462, N-471, N-481, N-482, N-491*, N-492*, N-493*, N-494*. At least six of these thirty credits must be from among Psychology N-421, N-422, N-432, N-461.

NOTE: Students planning to do graduate work in Psychology or related fields should take Psychology N-241 or N-242 in their first or second year.

Religion

The following courses, in an approved sequence, constitute a major in Religion:

- A. 6 credits from Religion N-211, N-213, N-311, N-312, N-313.

- B. 6 credits from Religion N-301, N-302, N-326, N-327, N-328, N-329, N-361, N-362, N-363.

- C. 30 additional credits in Religion at the '300' or '400' level.

Russian Studies (See Centre for Interdisciplinary Studies)

The following courses, in an approved sequence, constitute a major in Russian Studies:

Russian N-210	Introductory Course in Russian
Russian N-311	Advanced Russian Language and Stylistics
Russian N-241	Intermediate Russian
History N-341	History of Russia
Geography N-343	Geography of the U.S.S.R.

12 credits chosen from:

Russian N-351	Introduction to 19th Century Russian Literature through the Short Story
Russian N-452	Soviet Literature
Russian N-453	Russian Drama
Russian N-454*	Study of an Individual Russian Author I
Russian N-455*	Study of an Individual Russian Author II
History N-342	Problems in Russian and Soviet History
Political Science N-353	Soviet and East European Politics
Philosophy N-365	Studies in Russian Philosophy
Economics N-464*	Marxian Economics
Economics N-465*	Soviet Economics

Science and Human Affairs
(Formerly Humanities of Science)

The following courses, in an approved sequence, constitute a major in Science and Human Affairs:

A. Interdisciplinary Studies N-201*, N-202*, N-221*, N-222*.

B. 6 credits chosen from Interdisciplinary Studies N-312, N-321, N-331*, N-332*, N-351 or 6 credits in Science, as approved by the Department.

C. 18 additional credits chosen from: Interdisciplinary Studies N-401, N-446, N-447, N-472; Philosophy N-221, N-376*, N-421; Religion N-241; Sociology N-422; History N-333 or other courses with related content, as approved by the Department.

D. Interdisciplinary Studies N-493.

Social Psychology

The following courses, in an approved sequence, constitute a major in Social Psychology:

Psychology N-271 or Psychology N-273.

Psychology N-412 and Sociology N-420 or Psychology N-442 and Sociology N-430.

6 credits chosen from Sociology N-422, N-443, N-446.

6 credits chosen from Psychology N-422, N-432, N-434.

Psychology N-428 or Sociology N-411.

6 additional credits from either Anthropology or Sociology.

Sociology and Anthropology

The following courses, in an approved sequence, constitute a major in Sociology and Anthropology:

6 credits chosen from Area I.

6 credits chosen from Area II.

6 credits chosen from Area III.

6 credits chosen from Area IV.

6 additional credits chosen from either Area I, Area II, Area III, or Area IV.

12 credits from outside the Department chosen in consultation with the Major Advisor.

NOTE: For a breakdown of the Areas see section on departmental offerings.

Social Welfare

The following courses, in an approved sequence, constitute a major in Social Welfare:

A. At the introductory level: Economics N-209* and N-210*; Political Science N-320; Psychology N-211; Sociology N-210.

B. 12 additional credits in Sociology and 12 additional credits in at least one of the other three fields named above.

C. Applied Social Science N-461; Psychology N-241 or Sociology N-241.

Spanish

The following courses, in an approved sequence, constitute a major in Spanish:

Spanish N-221 or N-222, N-241.

Linguistics N-221.

24 credits chosen from Spanish N-311, N-412, N-451, N-452, N-453, N-454, N-455, N-456.

Statistics

The following courses, in an approved sequence, constitute a major in Statistics:

Mathematics N-241, N-261, N-271*, N-281, N-291*, N-341*, N-342*, N-343*, N-351*, N-352*, and 9 additional credits in Mathematics or related fields approved by the Department.

NOTE: Students who major in Statistics must register by November 1 of each year with the Department of Mathematics.

Urban Studies

(See Centre for Interdisciplinary Studies)

The following courses, in an approved sequence, constitute a major in Urban Studies:

A. Economics N-209* Introduction to Microeconomics
and Economics N-210* Introduction to
or Macroeconomics
Economics N-212 Introductory Economics

B. Geography N-211 Introduction to Human Geography

C. Political Science Comparative Politics
N-240 or
Political Science Government and Politics
N-330 of Canada

D. Sociology N-210 Introduction to Sociology

E. Economics N-375* Introduction to Statistics
or for Economists
Geography N-362* or Quantitative Geography I
Sociology N-241 Statistics

F. The remainder of 9 credits chosen from:

Economics N-274* The Use of Economic Data
Geography N-260* Introduction to
Cartography I
Geography N-261* Introduction to
Cartography II
Political Science Introduction to Problems
N-320 and Concepts in
Political Theory

Sociology N-411 Research Techniques
Economics N-426* Urban Economics
Geography N-331 Urban Geography
Sociology N-441* Sociology of Urban
Regions

Sociology N-448* Population and Society
Political Science Urban Politics
N-334

G. An additional 9 credits chosen from:

Economics N-304* Urban Economics
Economics N-305* Economic Policy II
Economics N-427* Regional Economics
Economics N-446* The Economic
Development of Quebec

Geography N-355 Spatial Organization
Geography N-434 Applied Urban Geography
Geography N-457* Geography of
Transportation

Political Science Problems of Public
N-333 Administration

Sociology N-440* Community Studies
Sociology N-450 Seminar in Urban and
Metropolitan Studies

Sociology N-454 Industry and Society

Other courses can be substituted with permission of the Urban Studies Committee.

No more than 6 of the 9 credits may be taken in any one department.

Joint Major Programmes

A "joint major" is made up of two approved sequences of five 6 credit courses or equivalent in two specific fields. The term "joint major" as used by Sir George Williams University implies that the student has followed, within the requirements for the degree, a planned programme of study in two specialized fields, with a lower degree of concentration in either than is afforded by a major programme. A student may select any two of the proposed sequences of courses to form a joint major. Each of these sequences is called a "joint major component".

Requirements for Joint Majors

A "joint major" is made up of any two "joint major components" selected by the student from the following list.

Joint Major Components

Art History

The following courses constitute the joint major component in Art History:

Art N-342, N-343, N-444.

12 credits chosen from Art N-341, N-345, N-441, N-442, N-443, N-445, N-446, N-448*, N-449*.

Economics

The following courses constitute the joint major component in Economics:

Economics N-209* and N-210* or N-212.

Economics N-311 or N-312.

Economics N-316 or N-318.

12 additional credits in Economics.

Education

The following courses constitute the joint major component in Education:

30 credits chosen from Education N-201, N-210, N-230*, N-311, N-390*, N-392*, N-415*, N-416*, N-417*, N-421, N-430, N-441, N-451, N-497*.

Education, Philosophy of (See *Philosophy of Education*)

English

The following courses constitute the joint major component in English:

I. 6 credits from English N-231, N-232, N-281, N-282, N-283, N-387.

II. 6 credits from English N-333, N-334, N-335, N-336, N-337, N-460, N-466.

III. 6 credits from English N-374, N-375, N-376.

IV. 12 additional credits in English at the '300' and '400' level excluding N-311.

French

The following courses constitute the joint major component in French:

French N-214 or N-310.

12 credits chosen from French N-241, N-321, N-331.

12 credits at the '300' or '400' level in French.

Geography

The following courses constitute the joint major component in Geography:

Geography N-211, N-271.

Geography N-260* and N-261*.

12 additional credits in Geography.

German

The following courses constitute the joint major component in German:

German N-241, N-311.

18 credits chosen from German N-354, N-451, N-452, N-453, N-455, N-456*, N-457*, N-458*, N-459*.

Greek

The following courses constitute the joint major component in Greek:

Classics N-221.

Greek N-210, N-241, N-441, N-442.

Hebrew

The following courses constitute the joint major component in Hebrew:

Hebrew N-241, N-441, N-442, N-451.

Linguistics N-221 or Arabic N-411.

History

The following courses constitute the joint major component in History:

History N-210.

6 credits chosen from History N-221, N-251, N-261.

12 credits at the '300' level in History.

6 additional '300' or '400' level credits in History.

Italian

The following courses constitute the joint major component in Italian:

Italian N-221, N-241, N-452.

12 credits at the '400' level in Italian literature taken at Loyola.

Judaic Studies

The following courses constitute the joint major component in Judaic Studies:

Hebrew N-210 or equivalent; Religion N-301*, N-302*, N-326*, N-327*, N-328*, N-329*.

Religion N-497* and N-498* or 6 additional credits at the '400' level chosen in consultation with the major advisor.

Latin

The following courses constitute the joint major component in Latin:

Classics N-221.

Latin N-240, N-341, N-441, N-442.

Linguistics

The following courses constitute the joint major component in Linguistics:

Linguistics N-221, N-421, N-431, N-441.

6 credits chosen from Arabic N-411; Linguistics N-490, N-491; English N-460, French N-312, N-313*, N-417, N-418*; Spanish N-412.

Mathematics

The following courses constitute the joint major component in Mathematics:

Mathematics N-241, N-261, N-271*, N-281, N-291* and 6 additional credits in Mathematics or a related field approved by the Department of Mathematics.

NOTE: Students following the joint major component in Mathematics must register by November 1 of each year with the Department of Mathematics.

Applied Mathematics (Optimization)

The following courses constitute the joint major component in Applied Mathematics (Optimization):

Mathematics N-241, N-261, N-271*, N-281, N-291*, and 6 additional credits in Mathematics or a related field approved by the Department of Mathematics.

NOTE: Students following the joint major component in Applied Mathematics must register by November 1 of each year with the Department of Mathematics.

Moving Pictures

The following courses constitute the joint major component in Moving Pictures:

30 credits chosen from Moving Pictures N-211, N-212, N-311, N-312, N-411, N-412, N-431.

Music

The following courses, in an approved sequence, constitute the joint major component in Music:

Music N-235 or equivalent.

The remainder of 30 credits in Music, including at least 12 at the '300' and '400' level, to be chosen in consultation with the Department.

NOTE: A student granted exemption from Music N-235 will substitute another 6 credits in Music chosen in consultation with the Department.

Philosophy

The following courses constitute the joint major component in Philosophy:

12 credits chosen from Philosophy N-221 or N-321, N-369, N-405.

18 credits chosen from Philosophy N-301, N-321, N-369, N-396*, N-401, N-403, N-405, N-407, N-421, N-431, N-493, N-495.

Philosophy of Education

The following courses constitute the joint major component in Philosophy of Education:

Education N-201, N-430, N-441, N-490*, N-491*, N-492*, N-493*.

Political Science

The following courses constitute the joint major component in Political Science:

A. 18 credits chosen from Political Science N-240, N-270, N-320, N-330.

B. 12 additional credits in Political Science.

Psychology

The following courses constitute the joint major component in Psychology:

Psychology N-271

24 credits chosen from Psychology N-241 or N-242, N-412, N-421, N-422, N-428, N-432, N-434, N-438, N-442, N-452, N-454, N-461, N-462, N-481, N-482. 6 of these 24 credits may be chosen from Psychology N-302*, N-303*, N-304*, N-305*, N-402*, N-403*, N-404*, N-405*.

Religion

The following courses constitute the joint major component in Religion:

30 credits in Religion to be determined in consultation with the Religion Major Advisor.

Russian

The following courses constitute the joint major component in Russian:

Russian N-241 and Russian N-311.

18 credits chosen from Russian N-351, N-452, N-453, N-454*, N-455*.

Science and Human Affairs

(Formerly Humanities of Science)

The following courses constitute the joint major component in Science and Human Affairs:

A. Interdisciplinary Studies N-201*, N-202*, N-221*, N-222*.

B. 18 credits from Interdisciplinary Studies N-312, N-351, N-401, N-446, N-447, N-472.

Sociology and Anthropology

The following courses constitute the joint major component in Sociology and Anthropology:

6 credits chosen from Area I.

6 credits chosen from Area II.

6 credits chosen from Area III.

6 credits chosen from Area IV.

6 additional credits chosen from either Area I, Area II, Area III, or Area IV.

NOTE: For a breakdown of the Areas see section on departmental offerings.

Spanish

The following courses constitute the joint major component in Spanish:

Spanish N-221 or N-222, N-241.

18 credits chosen from Spanish N-311, N-412, N-451, N-452, N-453, N-454, N-455, N-456.

Statistics

The following courses constitute the joint major component in Statistics:

Mathematics N-241, N-261, N-271*, N-281, N-291* and 6 additional credits in Mathematics or a related field approved by the Department of Mathematics.

NOTE: Students following the joint major component in Statistics must register by November 1 of each year with the Department of Mathematics.

Theatre Arts

The following courses constitute the joint major component in Theatre Arts:

Theatre Arts N-212, N-255.

18 credits chosen from Theatre Arts N-247, N-312, N-315, N-331, N-340, N-355, N-413, N-421, N-431, N-455.

Visual Arts

The following courses constitute the joint major component in the Visual Arts:

From 12 to 18 credits chosen from Art N-210*, N-211*, N-311*, N-312*, N-331*, N-332*, N-338*, N-370*, N-400*, N-401*, N-438*.

The remainder of 30 credits chosen from Art N-341, N-342, N-343, N-345, N-441, N-443, N-444, N-445, N-446.

Women's Studies *

The following courses constitute the joint major component in Women's Studies:

A. Interdisciplinary Studies N-241* Nature of Women; Historic Attitudes
Interdisciplinary Studies N-242* Nature of Women: Recent Approaches

B. Religion N-333* Women and Religion I
Religion N-334* Women and Religion II

C. History N-328 Women in Western History

D. Six credits chosen from:
Psychology N-383 Sexual Differentiation
Sociology N-458 The Sociology of Sex Roles

E. Political Science N-321 Women and the Law

NOTE: With the permission of the Advisor a student may substitute one course provided it has suitable content for one of the courses listed above.

Honours Programmes

The university has approved programmes leading to an honours degree in certain selected fields. An honours degree indicates specialization within a field, and high academic standing. In order to qualify for an honours degree a student must meet all of the academic qualifications and comply with the regulations set forth below.

1. A candidate for an honours degree should indicate such intention at registration and consult the honours representative of the department(s)

*3 credits

* Programme subject to approval by Senate.

concerned as soon as possible. Acceptance as an honours student will depend on performance during the first year. The honours standing will be reviewed annually.

A student who has followed the courses prescribed for the honours programme and has met all the requirements may enter the programme with the approval of the honours representative any time before beginning the final 30 credits. No retroactive approval of entry may be made.

2. A student who enters with advanced standing may apply pro tanto credits which are applicable to the honours degree requirements, upon approval by the department(s).

A transfer student must complete a minimum of 30 credits in the basic honours programme in residence to receive a degree with honours.

3. An honours student must maintain a 'B' average with no grade lower than 'C' in all courses in the basic honours programme.

An honours student must meet the general degree requirements as well as the specific requirements for an honours degree, and must obtain at least a 'C' average over the total degree programme.

Failure in any course will mean suspension or withdrawal from the honours programme. Students who fail to meet acceptance requirements and who are required to withdraw from the honours programme will proceed as majors. Reinstatement into the honours programme is possible only by recommendation by the honours representative.

4. A student shall be allowed to qualify for only one honours degree in either a single or combined honours programme.

5. A degree with honours in any programme is granted upon graduation only with the approval of the Senate.

Honours Committee

Associate Professor Roger B. Angel, Chairman
Assistant Professor E. Brian Markland
Assistant Professor Peter L. Miles
Associate Professor Ronald Westbury
Professor Joseph P. Zweig, Past Chairman
Mona Osborne, Secretary

Departmental Representatives

Economics	Peter L. Miles, <i>Assistant Professor of Economics</i>
Education	John Harrison, <i>Professor of Education</i>
English	Edward Pechter, <i>Assistant Professor of English</i>
French	Claude Lévy, <i>Assistant Professor of French</i>
Geography	Harry A. Clinch, <i>Associate Professor of Geography</i>
History	Richard J. Diubaldo <i>Assistant Professor of History</i>
Mathematics	Norman E. Smith <i>Professor of Mathematics</i>
Philosophy	Christine Garside <i>Assistant Professor of Philosophy</i>
Political Science	Harvey Shulman, <i>Assistant Professor of Political Science</i>
Psychology, Social Psychology	Thomas Gray, <i>Assistant Professor of Psychology</i>
Religion	David Miller, <i>Associate Professor of Religion</i>
Sociology and Anthropology	Kurt Jonassohn, <i>Professor of Sociology</i>
Statistics	T. Dwivedi, <i>Associate Professor of Mathematics</i>

Requirements for Honours

Economics

The following courses constitute an honours programme in Economics, provided the student maintains the required academic standing:

Pattern A

Economics N-209* and N-210* or N-212, N-311 or N-312; N-318, N-415.

Economics N-270* and N-271* or Mathematics N-203* and N-205,* or equivalent.

Economics N-375* or Quantitative Methods N-243* and N-244*, or equivalent.

6 credits in economic history chosen from Economics N-330, N-430, N-434, N-438.

The remainder of 60 credits to be chosen from all other Economics courses.

Pattern B (emphasis on Mathematical Economics)

Economics N-209* and N-210* or N-212, N-312, N-318, N-415, N-476*, N-477*.

Economics N-270* and N-271* or Mathematics N-203* and N-205,* or equivalent.

Economics N-375* or Quantitative Methods N-243* and N-244* or equivalent.

6 credits in economic history chosen from Economics N-330, N-430, N-434, N-438.

The remainder of 60 credits to be chosen from Economics N-412*, N-413*, N-442, N-443, N-470*, N-471*.

Education, Philosophy and
(See *Philosophy and Education*)

English

The following courses constitute an honours programme in English, provided the student maintains the required academic standing:

- I. A. 6 credits chosen from English N-241, N-260, N-262, N-263, N-267.
A student may substitute for one of the requirements in this section one of English N-225, N-226, N-227.
B. 6 credits chosen from English N-231*, N-232*, N-281, N-282, N-283, N-287.
- II. 18 credits chosen from English N-333, N-334, N-335, N-336, N-337, N-460, N-466.
- III. 6 credits chosen from English N-374, N-375, N-376.
- IV. 6 credits chosen from English N-244, N-343, N-344, N-348, N-440.
- V. 18 additional credits in English, excluding N-211 and N-311, of which at least 6 credits must be chosen at the '400' level. At least 36 of the 60 credits taken within the honours programme must be at the '300' or '400' level.

English, Philosophy and
(See *Philosophy and English*)

English and Religion

The following courses constitute an honours programme in English and Religion, provided the student maintains the required academic standing:

Pattern A (emphasis on the historical)

A. English N-333, N-375 or N-376.
12 credits chosen from English N-333, N-334, N-335, N-336, N-337, N-348, N-374 or N-376.
6 credits chosen from English N-430, N-487, N-492.

B. Religion N-301*, N-352*.

6 credits chosen from Religion N-211, N-213, N-363.

Religion N-461.

6 credits chosen from Religion N-443, N-491.

6 credits chosen from Religion N-311, N-312, N-313, N-326*, N-327*, N-328*, N-465.

Pattern B (emphasis on the contemporary)

A. English N-333.

12 credits chosen from English N-244, N-375, N-335, N-336, N-344, N-348.

English N-337 or N-356.

6 credits chosen from English N-351, N-353, N-430, N-456, N-487, N-492.

B. 24 credits chosen from Religion N-213, N-241, N-351*, N-352*, N-363, N-443.

12 credits chosen from Religion N-311, N-312, N-313, N-326*, N-327*, N-328*, N-491.

It is strongly recommended that an honours student in English and Religion planning to do graduate work acquire a good reading knowledge of French, German, Greek, Hebrew or Latin.

French

The following courses constitute an honours programme in French, provided the student maintains the required academic standing:

Pattern A (emphasis on Literature)

French N-214, N-241, N-310, N-321, N-331, N-491.

24 additional credits in French Literature.

Pattern B (emphasis on Linguistics)

French N-241, N-321, N-331.

French N-312, N-314, N-410, N-417.

18 credits in French at the '300' or '400' level.

Geography

The following courses constitute an honours programme in Geography, provided the student maintains the required academic standing:

Pattern A (emphasis on Physical Geography)

First Year: Geography N-211, N-260*, N-261*, N-271.

Second and Third Years: Geography N-362*, N-391*, N-491.

6 credits chosen from Geography N-341, N-343.
18 credits chosen from Geography N-371, N-372, N-373, N-475, N-476.

6 credits chosen from any '300' or '400' level Geography courses not listed above.

Pattern B (emphasis on Human Geography)

NOTE: Students taking this pattern may specialize in Historical Geography.

First Year: Geography N-211, N-260*, N-261*, N-271.

Second and Third Years: Geography N-362*, N-391*, N-491.
24 credits chosen from Geography N-316, N-321, N-322, N-412, N-422, N-423, including at least one of Geography N-341, N-343.

6 credits chosen from any '300' or '400' level Geography courses not listed above.

Pattern C (emphasis on Economic Geography)

NOTE: Students taking this pattern may specialize in Urban Geography.

First Year: Geography N-211, N-260*, N-261*, N-271.

Second and Third Years: Geography N-362*, N-391*, N-491.

6 credits chosen from Geography N-341, N-343.
18 credits chosen from Geography N-331, N-355, N-357, N-434, N-451, N-457*, N-458*.
6 credits chosen from any '300' or '400' level Geography courses not listed above.

History

The following courses constitute an honours programme in History, provided the student maintains the required academic standing:

First Year: History N-210 and 12 additional credits at the '200' level, 6 of which may be in a related discipline as approved by the Department.

Second Year: History N-390 and 12 additional credits in History, 6 of which may be at the '200' level, provided that no more than 18 '200' level credits are taken, including History N-210.

Third Year: History N-490 and 6 additional credits in History at the '400' level.
12 additional credits in History must be taken

with the proviso that the student may substitute 6 credits in an approved course in a related discipline.

NOTE: Students must include 6 credits in Canadian History among their electives.

History and Philosophy

The following courses constitute an honours programme in History and Philosophy, provided the student maintains the required academic standing:

First Year: History N-210, Philosophy N-211.

Second Year: History N-390, 6 credits chosen from History N-333, N-335, N-336.
Philosophy N-380, 6 credits chosen from Philosophy N-301, N-401, N-403.

Third Year: History N-490 or Philosophy N-490.

6 credits chosen from History N-333, N-335, N-336.

6 credits in History at the '400' level chosen in consultation with the departmental honours representative.

Philosophy N-405 or N-407.

6 additional credits in Philosophy at the '300' or '400' level chosen in consultation with the departmental honours representative.

History and Religion

The following courses constitute an honours programme in History and Religion, provided the student maintains the required academic standing:

Pattern I (Asia)

- A. History N-210, N-261, N-361, N-362, N-390.
- B. Religion N-213, N-311, N-312, N-313.
- C. Sociology N-210, N-424.

Any 6 credits at the '400' level in History or Religion may be substituted for any specified course with the approval of the honours representative. Students who are interested in comparative aspects of Islamic development are reminded that History N-365 is available.

Pattern II (Europe)

- A. History N-210, N-390.
- B. Religion N-211 or N-213.
- C. 42 credits chosen from:

History N-331, N-332, N-333, N-336;
Religion N-262, N-443, N-461;
Sociology N-210, N-424.

NOTE: Students electing to take Sociology N-210 in the honours programme must take Sociology N-424 as well.

Mathematics

The following courses constitute an honours programme in Mathematics, provided the student maintains the required academic standing:

First Year: Mathematics N-241, N-261, N-271*, N-281, N-291*.

Second Year: Mathematics N-361, N-366*, N-371*, N-381*, N-391*.

Third Year: Mathematics N-461, N-466*, N-467*, N-491*, N-492*.

Twelve credits in second and third years chosen from among:

Mathematics N-311*, N-312*, N-321*, N-322*, N-331, N-351*, N-392*, N-431, N-432*, N-451*, N-471*, N-475*; courses in related fields with prior Departmental approval.

NOTE: Students with a strong interest in Applied Mathematics (Optimization) who take Mathematics N-312, N-331, N-351* as their options may replace Mathematics N-467*, N-491*, N-492* with Mathematics N-431, N-432*.*

Philosophy

The following courses constitute an honours programme in Philosophy, provided the student maintains the required academic standing:

First Year: Philosophy N-211.

6 credits in Philosophy N-210 (or collegial equivalent), N-221, N-231, N-273.

Second Year: Philosophy N-221 or N-321, N-380
6 credits chosen from Philosophy N-301, N-401, N-403.

6 additional credits in Philosophy.

Third Year: Philosophy N-405, N-369 or N-421.
6 credits chosen from Philosophy N-407, N-409, N-431.

6 additional credits in Philosophy at the '300' or '400' level.

It is strongly recommended that an honours student in Philosophy planning to do graduate work acquire a good reading knowledge of a modern language related to his field of interest.

Philosophy and Education

The following courses constitute an honours programme in Philosophy and Education, provided the student maintains the required academic standing:

Psychology N-211.

6 credits chosen from Psychology N-212*, N-213*, N-302*, N-303*, N-434.

Education N-421 or N-451.

Education N-430.

Education N-441 (prerequisite: 6 credits at the '200' level in history).

Education N-480 (must be taken concurrently with Philosophy N-480).

Philosophy N-210 or N-211 or the Collegial or other equivalent.

Philosophy N-380.

Philosophy N-221 or N-321 or N-369.

6 credits chosen from Philosophy N-231, N-271, N-273, N-301, N-321, N-369, N-372*, N-374*, N-376*, N-378*, N-396*, N-401, N-403, N-405, N-407, N-431, N-493.

Philosophy N-369 or N-405.

Philosophy N-480 (must be taken concurrently with Education N-480).

Philosophy and English

The following courses constitute an honours programme in Philosophy and English, provided the student maintains the required academic standing:

18 credits chosen from English N-333, N-334, N-336, N-337, N-335, N-374, N-375, N-487.

18 credits chosen from English N-231*, N-232*, N-244, N-344, N-348, N-351, N-353, N-356, N-363, N-367, N-376, N-430, N-449*, N-456*, N-459, N-460, N-466, N-476*.

Philosophy N-210 or N-211 or the Collegial or other equivalent.

Philosophy N-380.

Philosophy N-221 or N-321 or N-369.

6 credits chosen from Philosophy N-231, N-271, N-273, N-301, N-361, N-369, N-372*, N-374*, N-376*, N-378*.

Philosophy N-369 or N-405.

6 credits chosen from Philosophy N-321, N-365, N-396*, N-401, N-403, N-405, N-407, N-431, N-493; Interdisciplinary Studies N-241*, N-242*.

Philosophy and Religion

The following courses constitute an honours programme in Philosophy and Religion, provided the student maintains the required academic standing:

12 credits chosen from Religion N-211, N-213, N-301*, N-302*.

Religion N-443.

Religion N-461 or Religion N-363.

Religion N-444.

6 credits chosen from Religion N-311, N-312, N-313, N-326*, N-327*, N-328*, N-491, N-492.

Philosophy N-210 or N-211 or the Collegial or other equivalent.

Philosophy N-380.

Philosophy N-221 or N-321 or N-369.

6 credits chosen from Philosophy N-231, N-271, N-273, N-301, N-361, N-365, N-369, N-372*, N-374*, N-376*, N-378*.

Philosophy N-369 or N-405.

6 credits chosen from Philosophy N-321, N-365, N-396*, N-401, N-403, N-405, N-407, N-431, N-493.

Political Science

The following courses constitute an honours programme in Political Science, provided the student maintains the required academic standing:

A. Political Science N-240, N-270, N-320, N-330.

B. 6 credits chosen from each of the four areas in Political Science.

C. Political Science N-415, N-491.

NOTE: Students are strongly advised to learn a foreign language or take a course in statistics.

For a breakdown of the Areas see section on departmental offerings.

Psychology

The following courses constitute an honours programme in Psychology, provided the student maintains the required academic standing:

First Year: Psychology N-241 or N-242, N-273 (see NOTE), N-412.

Second Year: 18 credits chosen from Psychology N-421, N-422, N-428, N-432, N-434, N-438, N-442 and N-461. In addition Psychology N-375* may be taken as an option.

Third Year: Psychology N-413, N-472. 6 credits chosen from Psychology N-421, N-422, N-428, N-432, N-434, N-438, N-442, N-452, N-454, N-461, N-462, N-481, N-482, N-491*, N-492*, N-493*, N-494*.

NOTE: Students who have taken Psychology N-271 in their first year and who are then accepted into the honours programme will be exempted from Psychology N-273, but may be required to take Psychology N-471 in their second year.

Religion

The following courses constitute an honours programme in Religion, provided the student maintains the required academic standing:

A. 12 credits from Religion N-211, N-213, N-311, N-312, N-313.

B. 12 credits from Religion N-301, N-302, N-326, N-327, N-328, N-329, N-341, N-362.

C. 24 additional credits in Religion at the '300' or '400' level, 12 of which must be at the '400' level.

D. 12 additional credits to be taken either in Religion or in a related discipline following approval by the departmental honours representative.

It is strongly recommended that an honours student in Religion planning to do graduate work acquire a good reading knowledge of French, German and other languages that might be required for his field.

Religion and Sociology

The following courses constitute an honours programme in Religion and Sociology, provided the student maintains the required academic standing:

A. Anthropology N-211, Religion N-213, Sociology N-210.

6 credits chosen from Religion N-301*, N-302, N-363.

B. 12 credits chosen from Religion N-311, N-312, N-313, N-326*, N-327*, N-328*, N-461. 12 credits chosen from: Religion N-491;

Sociology N-430 or N-431; N-481.
6 credits chosen from Anthropology N-423,
Sociology N-424, N-443, N-446, N-494.
6 additional credits in Sociology chosen in
consultation with the student's honours advisor.

It is strongly recommended that an honours
student in Religion and Sociology planning to
do graduate work acquire a good reading
knowledge of French, German, Greek, Hebrew
or Latin.

Russian Studies

The following courses constitute an honours
programme in Russian Studies, provided the
student maintains the required academic
standing:

Economics N-465*, (prerequisite: Economics
N-209* and N-210*, or N-212), N-464*.

Russian N-210, N-241, N-311.

History N-341, N-342; Geography N-343.

12 credits chosen from: Russian N-351, N-452,
N-453, N-454*, N-455*; Philosophy N-365;
Political Science N-352*.

Social Psychology

The following courses constitute an honours
programme in Social Psychology, provided the
student maintains the required academic
standing:

First Year: 6 credits from among Psychology
N-241, N-242, Sociology N-241.
Psychology N-273 (see NOTE).
Psychology N-412 or Sociology N-430.

Second Year: Sociology N-420 (if Psychology
N-412 was taken in first year) or Psychology
N-442 (if Sociology N-430 was taken in first
year).
6 credits from among Sociology N-422, N-433,
N-446.
6 credits from among Psychology N-422, N-432,
N-434.

Third Year: Psychology N-428 or Sociology
N-411. Psychology N-472 or Sociology N-481.
6 credits from Anthropology, Psychology or
Sociology.

*NOTE: Students who have taken Psychology N-271
in their first year and who are then accepted into
the honours programme will be exempted from
Psychology N-273, but may be required to take
Psychology N-471 in their second year.*

Sociology

The following courses constitute an honours
programme in Sociology, provided the student
maintains the required academic standing:

Sociology N-241, N-411 and N-481.

6 credits from Area II.

6 credits from Area III.

6 credits from Area IV.

6 additional credits within the Department.

18 credits outside the Department chosen in
consultation with the honours representative.
(All 18 credits must be within the same
Department.)

*NOTE: For a breakdown of the Areas see section
on departmental offerings.*

Sociology and Philosophy

The following courses constitute an honours
programme in Sociology and Philosophy,
provided the student maintains the required
academic standing:

Pattern A (Epistemology and Methodology)

Sociology N-210 or other equivalent.
Sociology N-241, N-411, N-481.
6 credits chosen from Sociology N-420, N-430,
N-431.
Sociology N-422 or N-496.
6 credits chosen from Philosophy N-210, N-211,
N-221 or the Collegial or other equivalent.
Philosophy N-380.
Philosophy N-221 or N-321.
Philosophy N-369 or N-405.
3 credits chosen from Philosophy N-372*,
N-374*, N-376*.
6 credits chosen from Philosophy N-321, N-369,
N-396*, N-401, N-405, N-421, N-493.

Pattern B (Man in Society)

Sociology N-210 or the Collegial or other
equivalent.
Anthropology N-211 or the Collegial or other
equivalent.
Sociology N-420, N-481.
6 credits chosen from Sociology N-421, N-422,
Anthropology N-423.
6 credits chosen from Sociology N-442, N-443,
N-444*, N-445*, N-446, N-447, N-454.
Philosophy N-210 or N-211.
Philosophy N-380.

6 credits chosen from Philosophy N-221, N-321, N-369.

6 credits chosen from Philosophy N-372*, N-374*, N-376*, N-378*.

12 additional credits in Philosophy.

Statistics

The following courses constitute an honours programme in Statistics, provided the student maintains the required academic standing:

First Year: Mathematics N-241, N-261, N-271*, N-281, N-291*.

Second Year: Mathematics N-351*, N-352*, N-361, N-366*, N-381*, N-391*.

Third Year: Mathematics N-371*, N-451*, N-452*, N-461, N-466*.

Nine credits in second and third years, chosen from among: Mathematics N-311*, N-312*, N-321*, N-331, N-341*, N-342*, N-343*, N-431, N-441*, N-467*, N-471*, N-491*, N-492*; courses in related fields with prior Departmental approval.

NOTE: Students with a strong interest in Applied Mathematics (Optimization) who take Mathematics N-312, N-331 as their options may replace either Mathematics N-371* and N-466* or N-461 with Mathematics N-431.*

NOTE: Students who honour in Statistics must register by November 1 of each year with the Department of Mathematics.

Urban Studies

The following courses constitute an honours programme in Urban Studies, provided the student maintains the required academic standing:

Economics N-209* and N-210*, or N-212; Geography N-211; Political Science N-240 or N-330; Sociology N-210.

Economics N-375* or Geography N-362* or Sociology N-241 and the remainder of 9 credits chosen from: Economics N-274*, N-375*, Geography N-260*, N-261*, Political Science N-320, Sociology N-441.

Economics N-426*; Geography N-331; Sociology N-411, N-448*; Political Science N-334*.

Interdisciplinary Studies N-491.

An additional 15 credits chosen from Economics N-304*, N-305*, N-427*, N-446*, Geography N-355*, N-434, N-457*, Political Science N-333, Sociology N-440*, N-450, N-453*, N-454.

Other courses can be substituted with permission of the Urban Studies Committee. No more than 15 credits may be taken in any one department.

Certificate in Education

The Department of Education offers a 30 credit programme leading to the Sir George Williams University Certificate in Education and certification from the Provincial Department of Education.

Admission Requirements

1. Evidence of full-time employment with a recognized educational institution in Quebec.
2. Possession of a Quebec Provisional Teaching Authorization.

Courses

Education N-201

Education N-210

either Education N-401* or Education N-402*

Education N-453*

Education N-471

6 additional undergraduate credits in Education chosen in consultation with the Director of the Programme.

Transfer

Students with a maximum of 15 credits from other recognized institutions may be allowed to transfer into the programme.

NOTE:

1. *The student must meet the minimum scholarship requirements set by the provincial government before being recommended for certification.*
2. *This programme is not open to teachers of vocational subjects.*

Curriculum for the Degree of Bachelor of Education (English as a Second Language) ¹

Elementary School Option Secondary School Option

The Centre for the Teaching of English as a Second Language offers the Degree of Bachelor of Education (English as a Second Language).

Graduates of the programme will be granted teacher certification from the Quebec Ministry of Education as well as the Bachelor's degree from the university.

Admission Requirements

General admission requirements are listed on page 38.

Specific requirements are as follows:

1. Satisfactory completion of a two-year pre-university programme in a CEGEP or equivalent. Within the programme the students will be required to have successfully completed the equivalent of four semester courses in English.

NOTE: We recognize that at least two years' warning must be given before a new profile can be accepted, and that this new profile is to be approved by the Comité de liaison enseignement supérieur enseignement collégial. Thus in the interim candidates who have not taken the minimum number of English courses will be admitted exclusively on the results of their performance in the Sir George Williams University English Language Diagnostic Test.

2. Owing to the specialized nature of this programme, no more than 30 pro tanto credits will normally be permitted, and the University reserves the right to determine which ones these should be.

3. Language competence:

Non-English students will be required to have fluency in the target language. The Sir George Williams English Language Diagnostic Test will be administered to determine English language competence.

Anglophone students planning to teach in the French school system are expected to have reasonable fluency in French. A test for language competence in French will be administered.

Degree Requirements Definition of Credit

Up to and including the academic year 1973-74, degree programmes have been expressed in terms of courses, with one credit being applied to a "full course" (normally two terms) and one half-credit being applied to a "half-course" (normally one term).

Starting in 1974-75, in accordance with the recommendations of the Quebec Council of Universities, the credit-base is being modified to take into account the total activity of the student. Students preparing for the degree of Bachelor of Education (English as a Second Language) will take a minimum of 90 credits. Each credit represents, for the average student, a minimum of 45 hours of work spread across lectures, conferences, laboratories, studio or practice-periods, tests, examinations and personal work.

Graduation with the degree of Bachelor of Education (English as a Second Language)
Elementary option requires:

Successful completion, in an approved sequence, of the following:

TESL N-222*, TESL N-231*, TESL N-241*,
TESL N-311*, TESL N-315*, TESL N-351*,
TESL N-422*, TESL N-431*, TESL N-441*,
TESL N-480.

9 credits selected from:

TESL N-317*, TESL N-319*, TESL N-321*,
TESL N-434*, TESL N-442*.

NOTE: Students with difficulties in articulation will be expected to take TESL N-201 in lieu of one of the TESL electives.*

Education N-201, N-210, N-230*, N-453*.
Either English N-211 or N-411.
Linguistics N-221.

¹ This programme of study is subject to approval by the Joint Committee on Programmes, Ministry of Education - Council of Universities.

6 additional credits in English, the selection to be approved by the Centre for English as a Second Language.

NOTE: Students whose mother tongue is English may, with the approval of the Centre, substitute French N-331.

12 credits from any department in the Faculty of Arts.

Graduation with the degree of Bachelor of Education (English as a Second Language) *Secondary Option* requires:

Successful completion, in an approved sequence, of the following:

TESL N-223*, TESL N-231*, TESL N-241*,
TESL N-312*, TESL N-315*, TESL N-351*,
TESL N-423*, TESL N-431*, TESL N-441*,
TESL N-480.

9 credits selected from:

TESL N-317*, TESL N-319*, TESL N-321*,
TESL N-434*, TESL N-442*.

NOTE: Students with difficulties in articulation will be expected to take TESL N-201 in lieu of one of the TESL electives.*

Education N-201, N-210, N-230* & N-453*.
Either English N-211 or N-411.
Linguistics N-221.

6 additional credits in English, the selection to be approved by the Centre for English as a Second Language.

NOTE: Students whose mother tongue is English may, with the approval of the Centre, substitute French N-331.

12 credits from any department in the Faculty of Arts.

NOTE: Graduating students will be re-tested for language proficiency, English or French, whichever is their second tongue.

Opportunities for Advanced Study and Research

With the approval of the Centre, students with a potential for advanced work and research may, within their options, select the following courses:

Linguistics N-431 Comparative Indo-European Linguistics

Linguistics N-441 Advanced Linguistic Theory
TESL N-490 Research Project

NOTE: Those possessing the degree of Bachelor of Education (English as a Second Language) Elementary or Secondary option will obtain a specialist teaching permit from the Quebec Ministry of Education.

Certificat d'enseignement de l'anglais, langue seconde au niveau élémentaire (programme intensif de perfectionnement)

The Centre for Teaching English as a Second Language offers a 30 credit programme leading to the *Certificat d'enseignement de l'anglais, langue seconde au niveau élémentaire*.

Successful candidates who are certified elementary school teachers will also obtain a specialist teaching permit from the Quebec Ministry of Education.

This programme is part of the Ministry of Education's emphasis on the improvement of second language teaching and is offered for a period of three years from 1973.

Admission Requirements

Applicants must apply to their school boards and be approved by the Ministry of Education. Successful candidates are granted a five-month sabbatical with full pay during which time they follow intensive courses at the University in the Day division. These five-month periods extend from September to January and February to June. Candidates in both terms return for additional courses during the summer session of the same year of study. Supervised internship takes place during the five-month training and for a further period after the students have returned to the school in which they are employed.

Other applicants may be considered for admission to the programme on the basis of their experience and additional criteria deemed appropriate by the Centre. However such students, while eligible for the certificate if they meet the demands of the programme, may not obtain a teaching permit from the Ministry of Education.

Courses

ESL N-203, ESL N-204*, TESL N-222*
 TESL N-231*, TESL N-311*, TESL N-315*,
 TESL N-422*, TESL N-441*, TESL N-479*.

NOTE: Native speakers of English may, with the approval of the Centre, take a substitute course for ESL N-203.

Certificate in the Teaching of English as a Second Language

Elementary Option
 Secondary Option

The Centre for Teaching English as a Second Language (TESL) offers during the evening and during its special summer sessions a thirty-credit programme leading to a Certificate in the Teaching of English as a Second Language.

Admission Requirements

1. In order to qualify for admission, students must possess an appropriate teacher's certificate

Others may be admitted on the basis of their experience and other criteria suited to the demands of the programme.

2. Language competence -

(i) Francophone students will be required to have reasonable fluency in the target language. The Sir George Williams English Language Diagnostic Test will be administered to determine English language competence.

(ii) Anglophone students planning to teach in the French school system are expected to have reasonable fluency in French. A test for language competence in French will be administered.

Courses*Elementary School Option:*

TESL N-222*, TESL N-231*, TESL N-241*,
 TESL N-315*, TESL N-422*, TESL N-441*.

English N-211 or English N-411
 6 credits in English literature approved by the Centre for English as a Second Language.

Secondary School Option:

TESL N-223*, TESL N-231*, TESL N-241*,
 TESL N-315*, TESL N-423*, TESL N-441*.

English N-211 or English N-411
 (To be determined by the Centre on the basis of the student's language competence).

6 credits in English literature approved by the Centre for English as a Second Language.

Supervised practice in the teaching of English as a second language and conferences with an advisor from the Centre will be conducted. Students are expected to demonstrate positive evidence of teaching competence and professional behaviour.

NOTE: The Centre may, at its discretion, grant up to 12 credits for equivalent courses.

Curriculum for the Degree of Bachelor of Fine Arts
Admission Requirements

General admission requirements are listed on page 38.

Specific requirements for admission to the various major programmes in Fine Arts are as follows:

Art History and Studio Art	Two full studio courses,
Art Education	one full Art History
Graphic Design	course and one additional
Visual Arts	full course selected
	from Art History,
	Cinema, Music or Theatre
	Arts. It is suggested
	that Art Education majors
	take a full course in
	Psychology and a full
	course in History or
	Philosophy.

Alternative requirements for entry to the Major in Theatre Arts (B.F.A.): 6 credits in English Literature (in addition to general required courses) and 6 credits in French.

A student without the necessary studio courses must take Art N-331* and Art N-332* as a prerequisite to other studio courses in the Visual Arts.

Note: Quebec universities have agreed to admit to the appropriate undergraduate programme any collegial student successfully completing the above programme provided of course that resources are sufficient. When all such qualified students have been admitted, the university reserves the right to admit students who may not have all the specific prerequisites according to its own criteria.

Degree Requirements

Definition of Credit

Up to and including the academic year 1973-74, degree programmes have been expressed in terms of courses, with one credit being applied to a "full course" (normally two terms) and one half-credit being applied to a "half-course" (normally one term).

Starting in 1974-75, in accordance with the recommendations of the Quebec Council of Universities, the credit-base is being modified to take into account the total activity of the student. Students preparing for the degree of Bachelor of Fine Arts will take a minimum of 90 credits. Each credit represents, for the average student, a minimum of 45 hours of work spread across lectures, conferences, laboratories, studio or practice-periods, tests, examinations and personal work.

For students not enrolled in the Bachelor of Fine Arts programme a limited number of openings are available in Art N-210*, N-211*, N-331*, N-332* and N-251. Courses open to all include Art N-232, N-240, N-248, N-249, N-342, N-343, N-345, N-441, N-443, N-444, N-445, N-446, N-461.

Applications to transfer into the Bachelor of Fine Arts programme will be considered at the end of first year university studies after students have completed Art N-331* and Art N-332*. The number of students accepted into the BFA programme will depend upon the space available. Applicants will be considered on the basis of a portfolio of work (three-dimensional work should be photographed), recommendations by the instructors and any other relevant information. Students intending to apply for transfer to the Bachelor of Fine Arts at the end of first year should fill out the necessary forms available from the Admissions Office.

Students who have already completed courses in other colleges or universities and wish to apply for advanced standing will be granted credits on the basis of the programme at Sir George Williams University. A transcript, portfolio and/or slides of work should be submitted to the Department of Fine Arts at the time of application prior to March 1st and by appointment with the Department. Students seeking a second degree must complete a minimum of the last two academic years at Sir George Williams University, while students

transferring credits towards a first degree must complete a minimum of one full academic year.

Graduation with the degree of Bachelor of Fine Arts requires:

1. Successful completion of a major programme of 60 credits.
2. A maximum of 48 '200' level credits out of the 90 course-credits required for the degree.
3. Students must take at least 24 of their 90 course-credits outside of the Department of Fine Arts. These 24 course-credits shall be selected according to the following requirements:
 - A. 12 credits shall be outside of the Department of Fine Arts but may be in the same division (Humanities) of the Faculty.
 - B. 12 credits in the other division of the Faculty (i.e. Social Sciences) or in another Faculty.

Concentration Requirement

Students must major in one of the following: Art Education, Art History, Art History and Studio Art, Fine Arts, Graphic Design, Music, Theatre Arts or Visual Arts.

Prior to registration, students will be required to select one of the types of programmes outlined above.

The requirement of selecting a major programme upon entry should not be thought of as being necessarily a final commitment. The Arts programme is designed to be flexible enough to allow for changes of orientation, subject, of course, to limitations in the case of certain programmes in great demand.

Residency Requirements for B.F.A.

with majors in Art Education, Graphic Design and Visual Arts

At least 30 credits in the studio and 6 credits in Art History must be taken at S.G.W.U. Ordinarily this will imply that the full-time student must enroll for two years of study at S.G.W.U.

Requirements for Majors**Art History (B.F.A.)**

The following courses, in an approved sequence, constitute a major in Art History:

A. Art N-240, N-341, N-342, N-343, N-443, N-444, N-447.

B. A minimum of 12 credits or a maximum of 24 credits chosen from Art N-240, N-345, N-441, N-442, N-445, N-446, N-460.

With permission of the Department, a student may substitute up to 12 credits for courses in Art History listed under B. These substitute courses may be selected from other sections of the Fine Arts Department or from other departments. In any case the major will consist of a total of 60 credits.

NOTE: Students who have had the CEGEP equivalent of Art N-240 need not take it as part of their major programme but may elect to take it with the permission of the Department.

Art History and Studio Art (B.F.A.)

The following courses, in an approved sequence, constitute a major in Art History and Studio Art.

Art N-240.
30 credits chosen from Art N-341, N-342, N-343, N-345, N-441, N-442, N-443, N-444, N-446, N-447.

A student may substitute one of Art N-460, N-461 for 6 credits in Art History.

30 credits in Studio courses in the Visual Arts which may include up to 6 credits in Theatre Arts N-255 or Moving Pictures N-211 or Music N-235 or N-335 or N-471* or N-485*.

Art Education (B.F.A.)

The following courses, in an approved sequence, constitute a major in Art Education.

Option A

Art N-430*, N-432*, N-450.

12 to 24 credits in Art Seminar or Art History.

The remainder of 60 credits to be chosen from Visual Arts Studio credits. Among these a student may choose up to 9 credits in Moving Pictures.

Option A is recommended for those wishing to teach Studio and/or Art History at the secondary level.

All students intending to apply for the Diploma in Art Education and Teacher Certification are required to take Education N-201 and one '400' level course in Education.

Option B

Art N-430*, N-432*, N-450.

18 credits in Visual Arts Studio.

6 credits in Art History.

24 credits to be selected from the following areas: Music, Theatre Arts, Moving Pictures.

Option B is recommended for those wishing to teach the "expressive" arts at the elementary level and for those Art Education majors interested in inter-arts education.

All students intending to apply for the Diploma in Art Education and Teacher Certification are required to take Education N-201 and 6 credits at the '400' level in Education.

Fine Arts (B.F.A.)

The following courses, in an approved sequence, constitute a major in Fine Arts:

A major consists of 60 credits selected from at least three of the following sections with a maximum of 24 credits selected from any one section.

Visual Arts**Art History Section**

Art N-240
Art N-342
Art N-343
Art N-345
Art N-443
Art N-444
Art N-445

Visual Arts**Studio Section**

Art N-210*
Art N-211*
Art N-311*
Art N-331*
Art N-332
Art N-370*
Art N-400*
Art N-430*

Theatre Arts Section

Theatre Arts N-247
Theatre Arts N-255
Theatre Arts N-315
Theatre Arts N-331

Music Section

Music N-235
Music N-245
Music N-321
Music N-341*
Music N-343*
Music N-345*
Music N-421

Moving Pictures Section

Moving Pictures N-211 Moving Pictures N-311
Moving Pictures N-212 Moving Pictures N-312

Graphic Design (B.F.A.)

The following courses, in an approved sequence, constitute a major in Graphic Design.

12 credits in lecture and/or seminar courses in Art or History including a minimum of six credits in Art History.

Art N-338*, N-370*, N-371*, N-372*.

18 credits chosen from Art N-373*, N-374*, N-471*, N-472*, N-473*, N-474*, N-475*, N-476*.

18 additional Studio Art credits.

NOTE: Students are advised to take Art N-370 and N-371* concurrently in the first term of the first year.*

Music (B.F.A.)

The following courses in an approved sequence, constitute a major in Music:

A. Music N-235 or equivalent.

B. Music N-231* or N-232, N-321, N-335, and N-341.

C. The remainder of 60 credits to be chosen from '300' and '400' level courses in Music in consultation with the Department.

Note: A student granted exemption from Music N-235 will substitute another 6 credits in Music chosen in consultation with the Department.

Theatre Arts (B.F.A.)

The following courses, in an approved sequence, constitute a major in Theatre Arts:

Theatre Arts N-212, N-247, N-255, N-421.

36 credits chosen from Theatre Arts N-312, N-315, N-331, N-340, N-355, N-413, N-431, N-455.

Visual Arts (B.F.A.)

The following courses, in an approved sequence, constitute a major in Visual Arts:

12 credits in lecture and/or seminar courses in Art or Art History including a minimum of six credits in Art History.

48 credits in Studio courses in the Visual Arts which may include up to six credits from Theatre Arts N-255, N-312; Moving Pictures N-311, N-312; Music N-231*, N-235, N-335, N-421, N-465*, N-471*, N-485*, N-486*.

Diploma in Art Education

The Department of Fine Arts offers a one year course leading to the Sir George Williams University Diploma in Art Education.

This course is integrated with the Bachelor of Fine Arts, Art Education Major, to provide a continuous pattern of studies preparing art specialists for teaching in elementary and secondary schools.

In order to qualify for admission students must have completed the Sir George Williams University Bachelor of Fine Arts, Art Education Major, or the equivalent. Graduates of other institutions will be considered if they have had the equivalent of an undergraduate major in studio work and can present an acceptable portfolio. They will be expected to make up the Education and Art Education courses included in the Bachelor of Fine Arts, Art Education Major.

The Diploma Course is offered in the Day Division only. Graduates who have been awarded the Diploma in Art Education meet the requirements for a Specialists Certificate in Art, awarded by the Quebec Board of Education. Detailed course descriptions will be found in the Graduate Studies Announcement.

Honours Programmes (B.F.A.)

The university has approved programmes leading to an honours degree in certain selected fields. An honours degree indicates specialization within a field, and high academic standing. In order to qualify for an honours degree a student must meet all of the academic qualifications and comply with the regulations set forth below.

1. A candidate for an honours degree should indicate such intention at registration and consult the honours representative of the department(s) concerned as soon as possible. Acceptance as an honours student will depend on performance during the first year. The honours standing will be reviewed annually.

A student who has followed the courses prescribed for the honours programme and has met all the requirements may enter the programme with the approval of the honours representative any time before beginning the final 30 credits. No retroactive approval of entry may be made.

2. A student who enters with advanced standing may apply pro tanto credits which are applicable to the honours degree requirements, upon approval by the department(s).

A transfer student must complete a minimum of 30 credits in the basic honours programme in residence to receive a degree with honours.

3. An honours student must maintain a 'B' average with no grade lower than 'C' in all courses in the basic honours programme.

An honours student must meet the general degree requirements as well as the specific requirements for an honours degree, and must obtain at least a 'C' average over the total degree programme.

Failure in any course will mean suspension or withdrawal from the honours programme. Students who fail to meet acceptance requirements and who are required to withdraw from the honours programme will proceed as majors. Reinstatement into the honours programme is possible only by recommendation by the honours representative.

4. A student shall be allowed to qualify for only one honours degree in either a single or combined honours programme.

5. A degree with honours in any programme is granted upon graduation only with the approval of the Senate.

Honours Committee

Associate Professor Roger B. Angel, Chairman
Assistant Professor E. Brian Markland
Assistant Professor Peter L. Miles
Associate Professor Ronald Westbury
Professor Joseph P. Zweig, Past Chairman
Mona Osborne, Secretary

Departmental Representative

Art History and Studio Art
D. Andrus,
Assistant Professor of Fine Arts

Requirements for Honours

Art History

The following courses constitute an honours programme in Art History, provided the student maintains the required academic standing:

Art N-341, N-342, N-343, N-345.

30 credits selected from the following:

Art N-439, N-441, N-442, N-443, N-444, N-445,
N-446, N-447, N-448*, N-449*.

Courses

Centre for Interdisciplinary Studies

*Associate Professor of History and Acting
Director of the Centre for Interdisciplinary
Studies*
David Wade Chambers

Professor
Fred Knelman

Assistant Professors
Gordon Cadenhead
Herbert Odom

Visiting Assistant Professor
George Bindon

*Visiting Assistant Professor of English and
Canadian Studies*
John Moss

The Centre for Interdisciplinary Studies offers a variety of interdisciplinary programmes. Each programme allows a student to study in a number of disciplines and relate these to the study of a complex area or problem. The area programmes include Canada, Russia and Asia. The programmes that confront issues are Science and Human Affairs, Urban Studies, and Women's Studies. The Centre also offers an Undergraduate Scholars Programme which encourages promising students to develop an individual programme of study in consultation with a faculty advisor.

Interdisciplinary Programmes

Asian Studies

Purpose of the Programme

As Canada strengthens her relationships with the nations of Asia, she will need young men and women who have been trained in Asian Studies to provide leadership in such fields as education, foreign service, banking, international law, overseas industry and business. The Asian Studies Programme seeks to meet this need by offering an interdisciplinary course of study involving the departments of Economics, Fine Arts, History, Geography, Political Science, Religion and Sociology-Anthropology.

Asian Studies CommitteeLalita Singh, *Political Science - Coordinator*Charles Brant, *Sociology-Anthropology*Philip Cohen, *Fine Arts*John Hill, *History*Sheila McDonough, *Religion*David Miller, *Religion*Shreekant Palekar, *Economics*Martin Singer, *History*

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Asian Studies: major

Students selecting this programme proceed to a major in Asian studies based on an approved 60 credit sequence that includes five core courses (Group A) and a range of five electives (Groups B & C).

- | | |
|---|--|
| <p>A. Interdisciplinary Studies N-495
History N-261
Political Science N-355
One of:
Religion N-311
Religion N-312
Religion N-313
Anthropology N-463</p> | <p>B. 18 credits from
Arabic N-411
Economics N-440
Economics N-448*
History N-361
History N-362
History N-461
Music N-343
Political Science N-485
Religion N-311
Religion N-312
Religion N-313</p> |
|---|--|

C. 12 credits from courses with Asian content chosen in consultation with the Asian Studies Major Advisor.

Canadian Studies**Purpose of the Programme**

The Canadian Studies Programme is designed to introduce the student to a number of disciplines as they apply to Canada. It provides the opportunity to obtain a liberal arts education given direction and depth by a focus on Canada. After completing the introductory core of courses, the student develops a proposal for an interdisciplinary research project and then in consultation with the Coordinator plans a programme of studies relevant to it. The research project is completed under the supervision of an advisor and is formally reported in the Canadian Studies Seminar.

Canadian Studies CommitteeRobin Burns, *History - Coordinator*David Mitchell, *Education*Patricia Morley, *English*John Moss, *English*Sandra Paikowsky, *Fine Arts*Richard Wilbur, *History*

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Canadian Studies: major

Students electing this programme proceed to a Major in Canadian Studies based on an approved sequence of courses which includes three core courses (Group A) and a range of electives (Groups B & C).

A. English N-244

French N-211

History N-221

B. At least 18 credits from the following:

- | | |
|------------------|--------------------------|
| English N-344 | History N-323 |
| English N-448* | History N-324 |
| Art N-249 | History N-421 |
| Art N-444 | Political Science N-330 |
| Music N-345* | Political Science N-335* |
| French N-331 | Political Science N-436* |
| French N-431* | Political Science N-437* |
| French N-432* | Sociology N-445* |
| French N-465* | Sociology N-470* |
| Geography N-341 | Sociology N-471 |
| Religion N-363 | Anthropology N-462 |
| Economics N-434 | |
| Economics N-446* | |
| Education N-442* | |
| History N-321 | |
| History N-322 | |

C. 12 credits chosen in consultation with the coordinator of the Canadian Studies Programme.

D. Interdisciplinary Studies N-411 Seminar in Canadian Studies.

Science and Human Affairs*(Formerly Humanities of Science)***Purpose of the Programme**

Offering one of the first programmes of its kind in North America, the Department is concerned with the social dimensions of science and technology. Its teaching and research provide an interdisciplinary examination of the cultural and environmental problems associated

with scientific and technological change. Attention is also focused on theoretical analysis of the internal social systems of science from historical, sociological and philosophical perspectives.

Science and Human Affairs Committee
David Wade Chambers, *History - Coordinator*
Roger Angel, *Philosophy*
George Bindon, *Interdisciplinary Studies*
Gordon Cadenhead, *Interdisciplinary Studies*
Frederick Knelman, *Interdisciplinary Studies*
Hugh McQueen, *Engineering*
Elaine Newman, *Biology*

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Science and Human Affairs (Formerly Humanities of Science): major

The following courses, in an approved sequence, constitute a major:

A. Interdisciplinary Studies N-201*, N-202*, N-221*, N-222*.

B. 6 credits chosen from Interdisciplinary Studies N-312, N-321, N-331*, N-332*, N-351 or 6 credits in Science, as approved by the Department.

C. 18 additional credits chosen from: Interdisciplinary Studies N-401, N-446, N-447, N-472; Philosophy N-221, N-376*, N-421; Religion N-241; Sociology N-422; History N-333 or other courses with related content, as approved by the Department.

D. Interdisciplinary Studies N-493.

Science and Human Affairs: joint major component

The following courses constitute the joint major component:

A. Interdisciplinary Studies N-201*, N-202*, N-221*, N-222*.

B. 18 credits from Interdisciplinary Studies N-312, N-351, N-401, N-446, N-447, N-472.

Russian Studies

Purpose of the Programme

The Russian Studies Major prepares students for professional and academic careers in Civil Service, Trade and Commerce, External Affairs

and other areas of relationship between Canada and the Soviet Union. A wide variety of courses in Russian language, politics, economics, history, philosophy and geography is taught by specialists who work closely with students in designing programmes which best fit their needs.

Russian Studies Committee
Irving Smith, *History-Coordinator*
T. Sidorow, *Russian Language*
P. Widdows, *Classics*

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Russian Studies: major

The following courses, in an approved sequence, constitute a major:

Russian N-210
Russian N-311
Russian N-241
History N-341
Geography N-343

12 credits chosen from:

Russian N-351
Russian N-452
Russian N-453
Russian N-454*
Russian N-455*
History N-342
Political Science N-353
Philosophy N-365
Economics N-464*
Economics N-465*

Russian Studies: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

Economics N-465*, (prerequisite: Economics N-209* and N-210*, or N-212), N-464*.

Russian N-210, N-241, N-311.

History N-341, N-342; Geography N-343.

12 credits chosen from Russian N-351, N-452, N-453, N-454*, N-455*; Philosophy N-365; Political Science N-352*.

Urban Studies*Purpose of the Programme*

The Urban Studies Programme introduces the student, through such disciplines as economics, sociology, geography and political science, to the many areas of research and theory relevant to the modern city and its problems. It also provides the necessary background for later post-graduate specialization in some aspect of urban research, planning or administration.

Urban Studies Committee

R.W.G. Bryant, *Geography-Coordinator*

T. Buckner, *Sociology*

G. Cadenhead, *Interdisciplinary Studies*

T.B.A., *Economics*

R. Keaton, *Political Science*

Z.A. Zieninski, *Engineering*

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Urban Studies: major

The following courses, in an approved sequence, constitute a major:

A. Economics N-209*

and

Economics N-210*

or

Economics N-212

B. Geography N-211

C. Political Science

N-240 or

Political Science

N-330

D. Sociology N-210

E. Economics N-375*

or

Geography N-362*

or

Sociology N-241

F. The remainder of 9 credits chosen from:

Economics N-274*

Geography N-331

Geography N-260*

Sociology N-441*

Geography N-261*

Sociology N-448*

Political Science

Political Science

N-320

N-334

Sociology N-411

Economics N-426*

G. 9 additional credits chosen from:

Economics N-304*

Geography N-457*

Economics N-305*

Political Science

Economics N-427*

N-333

Economics N-446*

Sociology N-440*

Geography N-355

Sociology N-450

Geography N-434

Sociology N-454

Other courses can be substituted with permission of the Urban Studies Committee.

No more than 6 of the 9 credits may be taken in any one department.

Urban Studies: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

Economics N-209* and N-210*, or N-212;
Geography N-211; Political Science N-240 or
N-330; Sociology N-210.

Economics N-375* or Geography N-362* or
Sociology N-241 and the remainder of 9 credits
chosen from: Economics N-274*, N-375*;
Geography N-260*, N-261*; Political Science N-320;
Sociology N-441.

Economics N-426*; Geography N-331; Sociology
N-411, N-448*; Political Science N-334*.
Interdisciplinary Studies N-491.

An additional 15 credits chosen from Economics
N-304*, N-305*, N-427*, N-446*, Geography
N-355*, N-434, N-457*, Political Science
N-333, Sociology N-440*, N-450, N-453*,
N-454.

Other courses can be substituted with
permission of the Urban Studies Committee. No
more than 15 credits may be taken in any one
department.

Women's Studies **Purpose of the Programme*

This programme is designed to present a
comprehensive view of women in society and to
stimulate an interest in the study of women.

Women's Studies Committee

Vivian Walters, *Sociology - Coordinator*

Christine Garside, *Philosophy*

Sheila McDonough, *Religion*

Joanne Morgan, *Psychology*

Students are responsible for satisfying their
particular degree requirements, hence the
following sequence *must* be read in conjunction
with pages 76 - 101.

Women's Studies: joint major component

The following courses constitute the joint major component:

- A. Interdisciplinary Studies N-241* Nature of Women: Historic Attitudes
Interdisciplinary Studies N-242* Nature of Women: Recent Approaches
- B. Religion N-333* Women and Religion I
Religion N-334* Women and Religion II
- C. History N-328 Women in Western History
- D. Six credits chosen from:
Psychology N-383 Sexual Differentiation
Sociology N-458 The Sociology of Sex Roles
- E. Political Science N-321 Women and the Law

NOTE: With the permission of the Advisor a student may substitute one course provided it has suitable content for one of the courses listed above.

Undergraduate Scholars Programme

The Undergraduate Scholars Programme of the Faculty of Arts permits a restricted number of responsible students of high academic ability to pursue individually tailored programmes of study leading to the Bachelor of Arts degree with a major or honours in an area of specialization. The programme is planned through consultation between the scholar and his faculty advisor. As many as 54 of the 90 credits required for the degree may be comprised of tutorials. Such tutorials might take the form of guided independent study, or independent field or laboratory research; their precise nature will depend upon the scholar's educational goals, interests and area of specialization.

A student who wishes to apply for admission to the Undergraduate Scholars Programme should submit a written statement of his educational goals and arrange to have his collegial transcript and two letters of recommendation forwarded to Associate Professor D. Miller, Chairman of the Undergraduate Scholars Programme, Dean of Arts Office, Sir George Williams University by March 1.

Interdisciplinary Studies

NOTE: 1. These courses were previously listed under the titles of Archaeology, Asian Studies, Canadian Studies, Humanities, Humanities of Science, Russian Studies and Urban Studies.

2. Courses in Interdisciplinary Studies may be regarded as courses in Humanities or in Social Sciences.

Interdisciplinary Studies N-201 (201)**Introduction to Science and Human Affairs I**

The social and historical context of scientific and technological change. The reciprocal interactions of science with government, ideology, economic development, religion, literature and social theory; science and the city; science and the control of human life; science and human liberation; new definitions of scientific responsibility may be considered. (3 credits)

NOTE: Students who have credits for two of the following four courses, Humanities of Science N-201, N-211, N-261 and N-271, may not take this course for credits.

Interdisciplinary Studies N-202 (202)**Introduction to Science and Human Affairs II**

A continuation of Interdisciplinary Studies N-201. This course may be taken independently. (3 credits)

NOTE: Students who have credits for two of the following four courses, Humanities of Science N-202, N-211, N-261, and N-271, may not take this course for credits.

Interdisciplinary Studies N-221 (221)**Environmental Issues I**

The scientific, social and cultural nature of man's relationship to his environment. Emphasis will be placed on pollution, conservation, Population resources and human ecology. (3 credits)

NOTE: Students who have credits for two of the following four courses, Humanities of Science N-221, N-211, N-261 and N-271, may not take this course for credits.

Interdisciplinary Studies N-222 (222)**Environmental Issues II**

A continuation of Interdisciplinary Studies N-221. This course may be taken independently. (3 credits)

NOTE: Students who have credits for two of the following four courses, Humanities of Science N-211, N-222, N-261 and N-271, may not take this course for credits.

*Interdisciplinary Studies N-241 (241)***Nature of Woman: Historic Attitudes**

An interdisciplinary study of the nature of woman as understood by western society from its Greek origins to the mid-nineteenth century. Sample topics are: the Greek myths, the Bible (Eve and Mary), Greek philosophy (Plato and Aristotle), courtly love, medieval mysticism and Victorianism (Kierkegaard, Schopenhauer, Queen Victoria and Ibsen). (3 credits)

NOTE: Students who have credits for Humanities N-241 or N-340 may not take this course for credits.

*Interdisciplinary Studies N-242 (242)***Nature of Woman: Recent Approaches**

An interdisciplinary study of the nature of woman as understood by western society from the mid-nineteenth century to the present. Sample topics are: the effect of the Industrial Revolution on the family (Marx and Engels), the emancipation of women (John Stuart Mill, Virginia Woolf), the psychology of woman (Freud and Jung), and contemporary attitudes towards women and Women's Liberation. (3 credits)

NOTE: Students who have credits for Humanities N-242 or N-340 may not take this course for credits.

*Interdisciplinary Studies N-312 (212)***Case Histories in Experimental Science**

Readings will concentrate on the original scientific texts (e.g. Harvey, Galileo, Newton, Faraday, Pasteur, Crick and Watson). In the laboratory section, students will follow the original experimental procedures which will also be examined in classroom demonstrations on film and on videotape. (6 credits)

NOTE: Students who have credits for Humanities of Science N-212 or N-312 may not take this course for credits.

Interdisciplinary Studies/Geography N-321 (448)
Early Man

Prerequisite: Geography N-211 or enrollment in an honours or department major programme in a Social Science. An examination of the scientific evidence for the unwritten part of man's evolutionary history. The course will study both food-gathering man and food-producing man. The roles of the biological and cultural components will be considered as well as the limiting factor of environment. (6 credits)

*Interdisciplinary Studies/Anthropology N-331 (211)***Introduction to Archaeology I**

An introduction to the archaeology of the ancient civilization of the Near East and Mediterranean. Special consideration will be given to key discoveries in such areas as Mesopotamia, Egypt, Palestine, Crete, Greece, and Italy. Problems of field methodology will also be discussed. (3 credits)

NOTE: Students who have credits for Archaeology N-211 may not take this course for credits.

*Interdisciplinary Studies/Anthropology N-332 (212)***Introduction to Archaeology II**

A survey of some of the more significant archaeological discoveries of prehistoric cultures in both Old and New Worlds. The techniques of physical science in archaeology will be examined. Consideration will also be given to the development of Early Man. (3 credits)

NOTE: Students who have credits for Archaeology N-212 may not take this course for credits.

*Interdisciplinary Studies N-351 (451)***Astronomy, Cosmology and the Space Age**

The nature of the universe as described in both contemporary and historical astronomical theories; cosmology and its cultural context; the nature of scientific method in astronomy; life on other worlds; the social implications of space flight. (6 credits)

NOTE: Students who have credits for Humanities of Science N-451 or Natural Science N-231 may not take this course for credits.

*Interdisciplinary Studies N-401 (471)***Advanced Study in Technology and Society**

Prerequisites: Humanities of Science N-201, N-202. The social role and impact of technology in modern society; alienation in the technological age; the critique of technology; the sources and processes of discovery; invention and innovation; methods of technological assessment and forecasting. (6 credits)

NOTE: Students who have credits for Humanities of Science N-401 or N-471 may not take this course for credits.

Interdisciplinary Studies N-411 (411)**Seminar in Canadian Studies**

Prerequisite: Registration in the second year of the major in Canadian Studies. This is a seminar course in Canadian Studies which involves participation by interested members of the staff as well as by students in the third year of the major in Canadian Studies. (6 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. A student repeating Interdisciplinary Studies N-411 for credits will register under Interdisciplinary Studies N-412.

Interdisciplinary Studies N-412 (412)**Seminar in Canadian Studies**

Prerequisite: Registration in second year of the major in Canadian Studies. A student repeating Interdisciplinary Studies N-411 for a second time registers for credits under Interdisciplinary Studies N-412. (6 credits)

NOTE: Students who have credits for Canadian Studies N-412 may not take this course for credits.

Interdisciplinary Studies/History N-446 (446)**Advanced Study in the History of Science**

Prerequisite: Permission of the instructor. Seminar in a selected topic in the History of Science. The emphasis will be on encouraging students to conduct historical investigation on their own under a professor's guidance. The specific content will vary from year to year depending on the instructor. (6 credits)

NOTE: With permission of the instructor, a student may take this course twice for credits provided that a different subject is dealt with the second time. A student repeating Interdisciplinary Studies N-446 for credits will register under Interdisciplinary Studies N-447.

NOTE: Students who have credits for Humanities of Science N-446 or History N-446 may not take this course for credits.

Interdisciplinary Studies/History N-447 (447)**Advanced Study in the History of Science**

Prerequisite: Permission of the instructor. A student repeating Interdisciplinary Studies N-446 for a second time registers for credits under Interdisciplinary Studies N-447. (6 credits)

NOTE: Students who have credits for Humanities of Science N-447 may not take this course for credits.

Interdisciplinary Studies/Political Science N-472 (472)**Science and Public Policy**

Prerequisites: Humanities of Science N-201, N-202. The relationship between science and government. Particular emphasis is placed on such problems as the role of the scientist in political decision-making, the making of Canadian science policy, the mix of basic, applied and mission-oriented research, the relations of science and the military, the nature of technocracy and the role of science in economically developing nations. (6 credits)

Interdisciplinary Studies N-491 (491)**Seminar in Urban Studies**

Prerequisite: Registration in third year honours in Urban Studies. Each student must prepare and submit an appropriate research paper. (6 credits)

NOTE: Students who have credits for Urban Studies N-491 may not take this course for credits.

Interdisciplinary Studies N-493 (493)**Seminar in Science and Human Affairs**

Prerequisite: Permission of the Department. Primarily designed for third year majors students in Science and Human Affairs. Taught by all members of staff, this seminar affords an opportunity for more intensive examination of an explicitly interdisciplinary theme. (6 credits)

Interdisciplinary Studies N-495 (495)**Seminar in Asian Studies**

Prerequisite: Permission of the Coordinator. A seminar designed for majors in Asian Studies. The seminar will vary in content depending upon the interests of the majors taking the course. (6 credits)

NOTE: With the permission of the Coordinator, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time under Interdisciplinary Studies N-496.

NOTE: Students who have credits for Asian Studies N-491 may not take this course for credits.

Interdisciplinary Studies N-496 (496)**Seminar in Asian Studies**

Prerequisite: Permission of the Coordinator. A student repeating Interdisciplinary Studies N-495 a second time registers for credits under Interdisciplinary Studies N-496. (6 credits)

NOTE: Students who have credits for Asian Studies N-492 may not take this course for credits.

Centre for Teaching English as a Second Language

Associate Professor and Director of the Centre
Anne M. Stokes

Administrator of Internship
Gwendolyn Newsham

Lecturer
B. Mary Petrie

Associate Professor
William B. Currie

Assistant Professors
Joe Darwin Palmer
Brian Michael Smith
Richard C. Yorkey

ESL N-203

Effective Communication I

This course is offered only to students enrolled in the programme *Certificat d'enseignement de l'anglais, langue seconde au niveau élémentaire (programme intensif de perfectionnement)*. The aim of the course is to develop a high degree of proficiency in both oral communication, and aural and reading comprehension. The course is offered at three levels, each one varying in length so that all students will end up with approximately the same measure of competence. (6 credits)

ESL N-204

Effective Communication II

This course is offered only to students enrolled in the programme *Certificat d'enseignement de l'anglais, langue seconde au niveau élémentaire (programme intensif de perfectionnement)*. The aim of the course is to encourage the development of clear effective writing. Aspects of styles such as appropriate levels of usage, choice of diction, and tone will be studied. (3 credits)

TESL N-201

Speech

This is an introductory course for those who have difficulty with the English sound system. It is a practical application of the knowledge of the sound, stress, intonation and rhythm patterns of English in effective oral communication. (3 credits)

TESL N-222

Introductory Methodology - Elementary

This course will prepare the student to use effectively the textbooks prescribed for the Elementary School level, and to adapt them to the objectives outlined by the Ministry of Education. The principles of selection and sequencing, and the techniques of presentation appropriate to the Elementary School child will be studied. (3 credits)

TESL N-223

Introductory Methodology - Secondary

This course will prepare the student to

effectively use the textbooks prescribed for the Secondary School level, and to adapt them to the objectives outlined by the Ministry of Education. The principles of selection and sequencing, and the techniques of presentation appropriate to the Secondary School student will be studied. (3 credits)

TESL N-231

Modern English Grammar

This course provides an intensive review of English grammar. All the elements of morphology and syntax are presented in a systematic, practical way in order to provide the essential background for a more profound analysis of English linguistic structures. Grammar exercise and analysis of the complexities of syntax form an integral part of the course. (3 credits)

TESL N-241

Language Acquisition

This course analyzes the developmental processes in native language acquisition. The psycho-linguistic factors involved in the child's conversion of language input into linguistic performance and their implication for second language learning are studied. Controlled presentation of material designed to promote competence in a second language is emphasized. (3 credits)

TESL N-311

Audio-Visual Aids in Second Language Teaching

Prerequisite: TESL N-222. This course examines audio-visual resources and their effective use in second language teaching. It familiarizes the student with language laboratory operation, the tape recorder, projectors and other equipment. The effectiveness of simple teaching aids such as flannel and magnetic boards, cue cards, stick figures, and picture cut-outs is studied with particular regard for the needs of the elementary school child. Students will be required to produce appropriate classroom materials. This course is intended for those registered in the Elementary Option.

(3 credits)

TESL N-312**Technology in Second Language Teaching**

Prerequisite: TESL N-223. This course examines audio-visual resources and their effective use in second language teaching. It familiarizes the student with language laboratory operation, the tape recorder, projectors and other equipment. Students will be required to develop materials consistent with their classroom needs, such as tapes, transparencies, slides, films, etc. This course is intended for those registered in the Secondary Option. (3 credits)

TESL N-315**Testing and Evaluation**

Prerequisite: TESL N-222 or N-223. An introduction to the general purposes and methods of language testing with a description of the chief characteristics of sound educational measures. The course examines the processes involved in constructing and administering ESL tests designed to evaluate proficiency in the four major skills: listening, speaking, reading and writing. (3 credits)

TESL N-317**Teaching Composition to the ESL student**

Prerequisite: Second year standing. This course examines the role of writing in second language teaching: its function in increasing retention and in reinforcing the other language skills, and its importance for testing purposes. Procedures and techniques are presented for teaching controlled, semi-controlled and free composition. Students will be required to develop models involving simple and multiple substitutions and integration and reduction exercises. The course is particularly relevant for the Secondary School teacher. (3 credits)

TESL N-319**Development of Effective Reading Skills**

Prerequisite: Second year standing. This course is concerned with the abilities required by the ESL student for decoding written material. The developmental stages in the reading process are explored, the techniques for vocabulary expansion are studied, and the essential features of material required for the various stages of reading competence are considered. The course is particularly relevant for the Secondary School teacher. (3 credits)

TESL N-321**Comparative Stylistics**

This course examines the stylistic resources of English in relation to those of French. Points of similarity and difference in cultural context and in phonology, morphology, syntax and vocabulary are studied. Practical work is conducted in analysis of translations from French to English. (3 credits)

TESL N-351**History and Development of the English Language**

A study of the morphological, phonological, syntactical and semantic changes that have taken place from Proto-Indo-European to the present. Students are required to do elementary linguistic analyses of texts from different stages in the development of the language. (3 credits)

TESL N-422**Advanced Methodology - Elementary**

Prerequisite: TESL N-222. In this course students are taught the criteria for assessment of materials and methods. Using these criteria they will be expected to prepare drills, exercises and dialogues and to produce complete lesson plans appropriate to the Elementary School level. Curriculum evaluation and curriculum planning will be an integral part of the course. (3 credits)

TESL N-423**Advanced Methodology - Secondary**

Prerequisite: TESL N-223. In this course students are taught the criteria for assessment of materials and methods. Using these criteria they will be expected to prepare drills, exercises and dialogues and to produce complete lesson plans appropriate to the Secondary School level. Curriculum evaluation and curriculum planning will be an integral part of the course. (3 credits)

TESL N-431**Grammatical Theory**

Prerequisite: TESL N-231. In this course the grammatical forms and structures of English which create difficulties for the ESL student are isolated and analyzed in detail with particular emphasis given to verb structures. A survey of various theories of grammar and their influence on the preparation of language teaching materials is also presented. In addition ESL textbooks presently being used in the Province of Quebec are examined in terms of the effectiveness of presentation of grammatical and syntactic structures. (3 credits)

TESL N-434**Error Analysis**

Prerequisite: Second year standing. A study of errors made by the ESL learner which do not derive from interference of his mother tongue. This course considers recurring types of intralingual and developmental errors resulting from overgeneralizations, incomplete application of rules and false analogy. Teaching procedures will take such developmental and structural conflicts into consideration. (3 credits)

TESL N-441**Comparative Phonetics**

A study of the phonetic and phonemic features of English and the methodology of corrective phonetic practice for the non-native speaker. A comparison of the phonological systems of English and French will be emphasized, but points of conflict between English and certain other languages, and methods of reducing interference, will also be discussed. (3 credits)

TESL N-442**Problems in Bilingualism**

An examination of the social and psychological background of languages in contact, with particular emphasis on the situation in Quebec. Motivation for second language learning in schools is studied in terms of cultural and socio-economic factors. In addition such extra-linguistic influences as the historic and political

context of bilingualism in Canada are covered. (3 credits)

TESL N-479**Internship**

This course is offered only to students enrolled in the programme *Certificat d'enseignement de l'anglais, langue seconde au niveau élémentaire*. It will involve observation and supervised teaching practice both in the university and in the schools. The course will also include seminar sessions for analysis and discussion of teaching performance. (3 credits)

TESL N-480**Internship**

This internship will be closely integrated with the TESL courses. It will provide a practical application of the theories and points of view advanced and discussed in the classes. It will consist of a total of approximately 275 hours. One hundred and fifty hours will be devoted to observation, teacher aid and practice teaching. A further 125 hours will be devoted to the preparation for, and attendance at, scheduled seminar sessions and tutorials for analysis and discussion of performance. (6 credits)

TESL N-490**Research Project**

This will include research related to some problem area of second language teaching. (6 credits)

Humanities Division

Classics, Modern Languages and Linguistics

Professor of Classics, and Chairman of the Department
Paul Widdows

NOTE: The university reserves the right to place any student in the course for which he is best suited.

I. Classics

Professor of Classics
Paul Widdows

Associate Professor of Classics and Linguistics
Charles R. Barton

NOTE: Students who have credits for Classics 011 may not take this course for credits.

Classics N-221 (211)**History of Greece and Rome**

A political, cultural and social history of Greece and Rome from the Mycenaean Age to the Fall of the Roman Empire, with special emphasis on fifth century Athens and Rome of the Republic and Early Empire. No knowledge of Latin or Greek is required. (6 credits)

Classics N-241 (241)**Greek Literature in Translation**

A survey of the major literary achievements of Ancient Greece. Special attention will be given to epic poetry, tragedy and comedy, as well as a variety of works in prose. The historical development of each of these genres will be discussed, along with a critical analysis of each author's contribution. No knowledge of Greek is required. (3 credits)

NOTE: Students who have credits for Classics 041 or 141 may not take this course for credits.

Classics N-242 (242)**Latin Literature in Translation**

A study through selected readings in translation of representatives of the major genres of Latin literature (epic, drama, satire, rhetoric, lyric poetry, philosophy) up to the second century A.D. No knowledge of Latin is required. (3 credits)

NOTE: Students who have credits for Classics 042 or 142 may not take this course for credits.

Ancient Greek

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Greek: joint major component

The following courses constitute the joint major component:

Classics N-221.

Greek N-210, N-241, N-441, N-442.

Greek N-210 (211)**Introductory Course in Greek**

The purpose of this course is to enable the student, in one year, to gain an adequate knowledge of Greek grammar and syntax and to read simple passages of Greek. (6 credits)

NOTE: Students who have credits for Greek 011 or 110 may not take this course for credits.

Greek N-241 (212)**Greek Language and Literature**

The purpose of this course is to complete the study of Greek grammar and syntax begun in Greek N-210, and to enable students to begin reading Ancient Greek authors. (6 credits)

NOTE: Students who have credits for Greek 012 or 141 may not take this course for credits.

Greek N-441 (421)**Greek Literature**

This is essentially a reading course involving the study of certain of the great works of Ancient Greek literature. It is assumed that students taking this course have an adequate knowledge of Greek and a fair vocabulary. (6 credits)

NOTE: Students who have credits for Greek 021 may not take this course for credits.

Greek N-442 (422)**Greek Literature (Advanced)**

A further study of Ancient Greek literature (to follow Greek N-441). (6 credits)

Latin

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Latin: joint major component

The following courses constitute the joint major component:

Classics N-221.

Latin N-240, N-341, N-441, N-442.

Latin N-210 (201)**Beginners' Latin**

This course is designed for students who have had no previous Latin and is particularly recommended for those students who wish to be prepared for Latin N-240. The course offers instruction in Latin grammar, translation and prose composition. (6 credits)

NOTE: Students who have received credits toward their admission for high-school Latin or have credits for Latin 001 may not take this course for credits.

Latin N-240 (211)**Latin Composition and Translation**

This course consists of translation and literary interpretation of prescribed selections from the Latin classics in prose and poetry. In addition there is a review of Latin grammar and syntax and instruction in prose composition. (6 credits)

NOTE: Students who have credits for Latin 011 may not take this course for credits.

Latin N-341 (421)**Latin Literature**

This course continues the study of Latin literature begun in Latin N-240, concentrating on particular authors. Two authors will be read during the year, one of whom will normally be Virgil. (6 credits)

NOTE: Students who have credits for Latin 021 or N-241 may not take this course for credits.

Latin N-441 (422)**Latin Literature (Advanced)**

A continuation of Latin N-241, concentrating on a particular period or the works of a particular author, e.g. Juvenal and Tacitus, or Lucretius. (6 credits)

Latin N-442 (423)

Latin Literature (Advanced)

A parallel course to Latin N-441 covering different authors, e.g. Latin Comedy, Latin Elegists or Horace. As Latin N-441 and Latin N-442 will not usually be given in the same year, Latin N-442 may be taken before Latin N-441.

II. Modern Languages

Literature in Translation N-350 (450)

A study of representative works of German or Russian literature. All reading and lectures will be in English. In any given year only one of these literatures will be offered. (6 credits)

NOTE: A student may take this course twice for credits, provided that the subject literature is different. He will register the second time under Literature in Translation N-351.

Literature in Translation N-351 (451)

A student repeating Literature in Translation N-350 for a second time registers for credits under Literature in Translation N-351. (6 credits)

Literature in Translation N-352 (452)

A study of representative works of Hispanic (Peninsular and Spanish American) or Italian literature. All readings and lectures will be in English. In any given year only one of these literatures will be offered. (6 credits)

NOTE: A student may take this course twice for credits, provided that the subject literature is different. He will register the second time under Literature in Translation N-353.

Literature in Translation N-353 (453)

A student repeating Literature in Translation N-352 for a second time registers for credits under Literature in Translation N-353. (6 credits)

German

Associate Professor
Annamaria Ketter
Assistant Professor
Ilse Ehmer

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

German: major

The following courses, in an approved sequence, constitute a major:

German N-241, N-354, N-452, N-453, N-455.

12 credits chosen from German N-451, N-456*, N-457*, N-458*, N-459*.

It is recommended that a student majoring in German take 6 additional credits chosen from Linguistics N-221, Philosophy N-211 or N-361, Religion N-443, History N-210, Political Science N-351, Geography N-423, Latin N-210 or N-240.

German: joint major component

The following courses constitute the joint major component:

German N-241, N-311.

18 credits chosen from German N-354, N-451, N-452, N-453, N-455, N-456*, N-457*, N-458*, N-459*.

German N-210 (211)

Introductory Course in German

A beginners' course in the German language which is designed, in one year, to make the student conversant with the grammar, pronunciation and ordinary vocabulary of the language. Emphasis is placed upon learning to speak the language, as well as to read and write it. Lectures and laboratory. (6 credits)

NOTE: Students whose first language is German or whose schooling has been conducted in German will not be admitted to this course. Students who have credits for German 011, 110, 015, 215 or N-215 may not take this course for credits.

German N-215 (215)

German for Reading Knowledge

This course will give the student sufficient background in the structure of the language to be able to read German with reasonable competence. Practice material will be both technical and nontechnical. No previous knowledge of the language is required. (6 credits)

NOTE: Students whose first language is German or whose schooling has been conducted in German will not be admitted to this course. Students who have credits for German 011, 015 or N-210 may not take this course for credits. This is a terminal course, and may not be used as a prerequisite for advanced courses in German.

*German N-241 (212)***German Language and Literature (Intermediate)**

Prerequisite: German N-210 or equivalent.
Advanced instruction in the language. Emphasis upon idiom and usage in conversation and composition. Representative readings from the works of German writers. (6 credits)

NOTE: Students whose first language is German or whose schooling has been conducted in German will not be admitted to this course. Students who have credits for German 012 or 141 may not take this course for credits.

*German N-311 (411)***Advanced German Language and Stylistics**

Prerequisite: German N-241 or equivalent.
This course is intended to give the student increased fluency and a firmer command of the language. The emphasis of the course is on stylistics and composition. The subject matter will be approached through a study of German civilization. (6 credits)

NOTE: Students who have credits for German 091 or N-211 may not take this course for credits.

*German N-354 (421)***A Study of the Deutsche Novelle**

Prerequisite: German N-241 or equivalent.
Advanced composition and oral work. A study of the Deutsche Novelle from Goethe to Kafka. This course is conducted entirely in German. (6 credits)

NOTE: Students who have credits for German N-454 may not take this course for credits.

*German N-451 (424)***German Literature of the Sixteenth and Seventeenth Centuries**

Prerequisite: German N-241. A detailed study of representative writers of this period, such as Luther, Brant, Hans Sachs, Silesius, Grimmelshausen and others. Classes will be conducted in German. (6 credits)

*German N-452 (422)***German Literature from 1750 to 1830**

Prerequisite: German N-241 or equivalent.
Study of the works of Lessing, Goethe, Schiller, Brentano and others. This course is conducted entirely in German. (6 credits)

*German N-453 (423)***History of the German Drama**

Prerequisite: German N-241 or equivalent. A study of German drama from its beginnings to modern times. Classes will be conducted in German. (6 credits)

*German N-455 (451)***Reading Course in the Modern German Novel**

Prerequisite: German N-354 or N-311. A study of the German novel since 1900. There will be no class periods, and students will work under the direct supervision of the instructor. Regular assignments will be given, and written and oral examinations will be given at the end of the course. (6 credits)

*German N-456 (425)***The 'Hörspiel'**

Prerequisites: German N-241 and N-311.
A study of one of the youngest art forms which was developed with the help of and for a new medium, the radio. Literary and technical aspects as well as the most representative writers, i.e. Eich, Dürrenmatt, Böll, Hildesheimer and others, will be discussed. Classes will be conducted in German. (3 credits)

*German N-457 (426)***German Poetry from the Middle Ages to Modern Times**

Prerequisites: German N-241 and N-311.
A conspectus of German poetry through the centuries. Outstanding examples of representative poets will be studied in detail. Classes will be conducted in German. (3 credits)

*German N-458 (427)***Study of an Individual German Author I**

Prerequisites: German N-241 and N-311. This course will consist of the detailed study of a German author, e.g. Kafka, Rilke, Goethe. Classes will be conducted in German. (3 credits)

*German N-459 (428)***Study of an Individual German Author II**

Prerequisite: German N-241 and N-311.
This course will consist of the detailed study of a German author, e.g. Brecht, Büchner, Lenz. Classes will be conducted in German. (3 credits)

Hebrew**Associate Professor of Spanish and Supervisor of Hebrew**

Joseph A. Macaluso

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Hebrew: joint major component

The following courses constitute the joint major component:

Hebrew N-241, N-441, N-442, N-451.
Linguistics N-221 or Arabic N-411.

Hebrew N-210 (211)**Introductory Course in Hebrew**

A beginners' course in Hebrew, spoken and written, with reading of classical and modern texts. Lectures and laboratory. (6 credits)

NOTE: Students who have credits for Hebrew 023 or whose schooling has been conducted in Hebrew will not be admitted to this course. Students who have credits for Hebrew 011 or 110 may not take this course for credits.

Hebrew N-215 (215)**Biblical Hebrew**

A course designed to enable the student to acquire the elements of Biblical Hebrew by means of reading practice and other exercises. This course is directed specifically towards Hebrew Biblical studies and is in no sense an equivalent of Hebrew N-210. (6 credits)

Hebrew N-241 (212)**Intermediate Course in Hebrew**

Prerequisite: Hebrew N-210, or two or three years of high-school Hebrew or equivalent. Readings in the Bible and an introduction to modern Hebrew literature. This course will also complete the study of Hebrew grammar and syntax begun in Hebrew N-210, with special emphasis on modern Hebrew usage. (6 credits)

NOTE: Students whose first language is Hebrew or whose schooling has been conducted in Hebrew will not be admitted to this course. Students who have credits for Hebrew 012 or 141 may not take this course for credits.

Hebrew N-441 (422)**From the Talmudic Period to the Haskalah**

Prerequisite: Hebrew N-241 or equivalent. Hebrew literature from Talmudic times to the Enlightenment. Classes will be conducted in Hebrew. (6 credits)

Hebrew N-442 (424)**Medieval Literature (The Golden Age)**

Prerequisite: Hebrew N-441 or N-451 or equivalent. A study of the literature of the Hebrew Golden Age with emphasis on Maimonides, Judah Halevi, Ibn Ezra, Ibn Gabirol, Rashi and Gersonides. Classes will be conducted in Hebrew. (6 credits)

Hebrew N-451 (423)**Modern Literature**

Prerequisite: Hebrew N-241 or equivalent. A study of Hebrew literature of the 19th and 20th centuries. This course is conducted in Hebrew. (6 credits)

NOTE: Students who have credits for Hebrew 023 may not take this course for credits.

Italian**Associate Professor of Spanish and Italian**

Joseph A. Macaluso

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Italian: joint major component

The following courses constitute the joint major component:

Italian N-221, N-241, N-452.

12 credits at the '400' level in Italian literature taken at Loyola.

Italian N-210 (211)**Introductory Course in Italian**

A beginners' course in the Italian language which is designed, in one year, to acquaint the student with the main grammatical principles and basic vocabulary. Practice is given in reading, writing and conversation with particular emphasis on oral work. Lectures and laboratory. (6 credits)

NOTE: Students whose first language is Italian or whose schooling has been conducted in Italian will not be admitted to this course. Students who have credits for Italian 011 or 110 may not take this course for credits.

Italian N-221 (221)**Italian Civilization**

Prerequisite: Italian N-241 or equivalent or permission of the Department. This course is designed to introduce the student to Italy's cultural, artistic and social institutions as reflected in her *belle arti*, literature and commercial history. Certain literary works will be analyzed as a reflection of her people. Generally, the period to be covered will encompass from Italy's earliest times until the present era. Although primarily concerned with ideas and aesthetics, attention will be given to regional customs and dialectology. This course will be conducted in Italian. (6 credits)

NOTE: Students who have credits for Italian 021 or 121 may not take this course for credits.

Italian N-241 (212)**Intermediate Italian**

Prerequisite: Italian N-210 or two years of high school Italian or equivalent or permission of the instructor. This course consists of a complete review of Italian grammar and a study of some of the more advanced aspects of usage. Through the reading of short stories, poetry and novels, the student is given the opportunity to acquaint himself with Italian letters and civilization. (6 credits)

NOTE: Students whose first language is Italian or whose schooling has been conducted in Italian will not be admitted to this course. Students who have credits for Italian 012 may not take this course for credits.

Italian N-452 (422)**Literature of the Twentieth Century**

Prerequisite: Italian N-241 or equivalent. A course in Italian literature of the twentieth century, from the turn of the century to the present. All genres will be considered. Classes will be conducted in Italian. (6 credits)

Russian**Associate Professor**

Angelika-Tatiana Sidorov

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Russian: joint major component

The following courses constitute the joint major component:

Russian N-241 and Russian N-311.
18 credits chosen from Russian N-351, N-452, N-453, N-454*, N-455*.

NOTE: For major and honours in Russian Studies, see Interdisciplinary Studies.

Russian N-210 (211)**Introductory Course in Russian**

A beginners' course in the Russian language which is designed, in one year, to acquaint the student with pronunciation, the main grammatical aspects and a basic vocabulary. Emphasis is placed on speaking, reading and writing Russian. Lectures and laboratory. (6 credits)

NOTE: Students whose first language is Russian or whose schooling has been conducted in Russian will not be admitted to this course. Students who have credits for Russian 011, 015, 215 or N-215 may not take this course for credits.

Russian N-215 (215)**Reading Course in Russian**

This course will give the student sufficient grasp of the structure of the language and sufficient basic vocabulary to be able to read Russian with the aid of a dictionary. Both technical and non-technical material will be used. (6 credits)

NOTE: Students whose first language is Russian or whose schooling has been conducted in Russian will not be admitted to this course. Students who have credits for Russian 011, 015 or N-210 may not take this course for credits. This is a terminal course and may not be used as a prerequisite for advanced courses in Russian.

Russian N-241 (212)**Intermediate Russian**

Prerequisite: Russian N-210 or equivalent. This course consists of a complete review of Russian grammar, composition, reading and conversation. Through reading of short stories and additional material, the student is given the opportunity of acquainting himself with Russian culture and literature. (6 credits)

NOTE: Students whose first language is Russian or whose schooling has been conducted in Russian will not be admitted to this course. Students who have credits for Russian 012 may not take this course for credits.

Russian N-311 (411)**Advanced Russian Language and Stylistics**

Prerequisite: Russian N-241 or permission of the instructor. This course is intended to give increased fluency and a firmer command of the language. The emphasis of the course is on stylistics and composition. Through additional reading students are given the opportunity to acquaint themselves with the various aspects of Russian civilization. Selected texts will be discussed and analysed in Russian. (6 credits)

NOTE: Students who have credits for Russian 091 or N-231 may not take this course for credits.

Russian N-351 (421)**Introduction to 19th Century Russian Literature through the Short Story**

Prerequisite: Russian N-241 or equivalent. The short story will be used both as a subject for literary study and as a reflection of the history and social preoccupations of the period.

Opportunity will be provided for discussion and some attention will be paid to composition. This course is conducted in Russian. (6 credits)

NOTE: Students who have credits for Russian N-451 may not take this course for credits.

Russian N-452 (422)

Soviet Literature

Prerequisite: Russian N-241 or equivalent. A general survey of Soviet prose, drama and poetry from 1917 to the present day. The aim of the course is to familiarize the student not only with the literature itself but also with its origins and development. Opportunity will be provided for discussions and some time will be devoted to advanced composition. This course is conducted in Russian. (6 credits)

Russian N-453 (423)

Russian Drama

Prerequisite: Russian N-241 or permission of the instructor. The course traces the development of Russian drama from the end of the 18th century to the present day. The following will be discussed: D. Fonvisin, A. Gribojedov, A. Pushkin, M. Lermontov, N. Gogol, A. Ostrowski, A. Chekhov, A. Tolstoi, M. Gorki, A. Afinogenov, L. Leonov. This course is conducted in Russian. (6 credits)

Russian N-454 (454)

Study of an Individual Russian Author I

Prerequisite: Russian N-241 or equivalent. This course will consist of the detailed study of a Russian author, e.g. L.N. Tolstoy, F.M. Dostojevskii, N.V. Gogol. The chosen author will vary from time to time, in accordance with the needs of the students. (3 credits)

Russian N-455 (455)

Study of an Individual Russian Author II

Prerequisite: Russian N-241 or equivalent. This course will consist of the detailed study of a Russian author, e.g. A.S. Pushkin, M. Ju. Lermontov, I.A. Goncharov. The choice of author will vary from time to time, in accordance with the needs of the students. (3 credits)

Spanish

Associate Professor of Spanish and Linguistics

John D. Grayson

Associate Professor of Spanish and Italian

Joseph A. Macaluso

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Spanish: major

The following courses, in an approved sequence, constitute a major:

Spanish N-221 or N-222, N-241.

Linguistics N-221.

24 credits chosen from Spanish N-311, N-412, N-451, N-452, N-453, N-454, N-455, N-456.

Spanish: joint major component

The following courses constitute the joint major component:

Spanish N-221 or N-222, N-241.

18 credits chosen from Spanish N-311, N-412, N-451, N-452, N-453, N-454, N-455, N-456.

Spanish N-201 (201)

Introduction to Spanish I (3 credits)

Spanish N-202 (202)

Introduction to Spanish II

These two courses constitute a beginners' course in the Spanish language which is designed to acquaint the student in one year with the main grammatical principles and basic vocabulary. Practice is given in reading, writing and conversation, particular emphasis being placed on oral work. In the second term, classes are conducted as far as possible in Spanish. Lectures and laboratory. (3 credits)

NOTE: Students whose first language is Spanish, who have received credits for two years of high school Spanish, will not be admitted to this course. Students who have credits for Spanish N-210, 011, 110, 211 may not take these courses for credits. Spanish N-201 and N-202 are equivalent to two years' study at the secondary or collegial level. Students having one year of secondary or collegial Spanish will register only for the second course, Spanish N-202.

Spanish N-221 (429)

Spanish Civilization

Prerequisite: Spanish N-241 or equivalent. This course is designed to acquaint the student with Spain's intellectual and cultural history as reflected in her writers. Although it is primarily concerned with ideas and aesthetics, attention will also be given to the development of language, dialectology, customs and folklore. This course is conducted in Spanish. (6 credits)

NOTE: Students who have credits for Spanish 029 may not take this course for credits.

*Spanish N-222 (222)****El ideario hispanoamericano***

Prerequisites: Spanish N-210 or N-201 and N-202 or equivalents. A brief study of pre-Columbian civilizations from original sources (Cortés, Díaz, etc). The course will then trace Spanish-American thinking, cultural and political, from Colonial times to the present, as reflected in the novel and (especially) the essay. Some attention will also be given to dialectology and regionalism. (6 credits)

*Spanish N-241 (212)****Spanish Language and Literature (Intermediate)***

Prerequisites: Spanish N-210, or N-201 and N-202, or two or three years of high school Spanish, or equivalent. Included in this course are a complete review of Spanish grammar and a study of some of the more advanced aspects of usage. Through the reading of short stories and novels, the student is given the opportunity to acquaint himself with Spanish and Spanish-American letters and civilization. Classes will be conducted in Spanish. (6 credits)

NOTE: Students whose first language is Spanish or whose schooling has been conducted in Spanish will not be admitted to this course. Students who have credits for Spanish 012 may not take this course for credits.

*Spanish N-311 (411)****Advanced Spanish Composition and Stylistics***

Prerequisite: Spanish N-241. A course to treat in detail the finer points of Spanish stylistics. Special attention will be given to free composition and semantics. (3 credits)

NOTE: Students who have credits for Spanish N-411 may not take this course for credits.

*Spanish N-412 (412)****History of the Spanish Language***

Prerequisites: Spanish N-241 and Linguistics N-221 or permission of the Department. A study of the origins of the Spanish language from Vulgar Latin into Old Spanish and thence through the centuries. Attention will be given to non-Latin contributions of the Spanish lexicon, stylistic development and the parallel development of the other Romance vernaculars of Iberia. (6 credits)

*Spanish N-451 (451)****The Middle Ages***

Prerequisites: Spanish N-241 and any 6 credits at the '400' level in Spanish. A study of the characteristics of Old Spanish, with readings in the literature of the Middle Ages. Ample practice is given in oral and written expression. Classes will be conducted in Spanish. (6 credits)

NOTE: Students who have credits for Spanish 422 before 1969-70 may not take this course for credits.

*Spanish N-452 (426, 427)****El Siglo de Oro***

Prerequisites: Spanish N-241; Spanish N-221 or equivalent. This course is designed to introduce to the student the masterpieces of Spain's Golden Age. Particular emphasis is given to Cervantes and the Quijote. This course is conducted in Spanish. (6 credits)

*Spanish N-453 (453)****Nineteenth Century Spanish Literature***

Prerequisite: Spanish N-241 or equivalent. A study of the work of representative writers of the period, with ample practice offered in oral and written expression. Classes will be conducted in Spanish. (6 credits)

NOTE: Students who have credits for Spanish 422 before 1969-70 may not take this course for credits.

*Spanish N-454 (423)****Twentieth Century Spanish Literature***

Prerequisite: Spanish N-241. A study of the literature of Spain, starting with the Generation of '98 and going up to the present day. Ample practice is given in oral expression and advanced composition. Classes will be conducted in Spanish. (6 credits)

*Spanish N-455 (421)****The Literature of Spanish America***

Prerequisite: Spanish N-241 or equivalent. The aim of this course is to familiarize the student with the history, political thought and civilization of Spanish America as expressed through her literature. Ample practice is given in oral expression and advanced composition. Classes will be conducted in Spanish. (6 credits)

*Spanish N-456****Modernismo***

Prerequisite: Spanish N-241. A detailed study of Modernismo. (This is a Spanish-American literary school that transformed Spanish letters both there and in the Peninsula.) Readings from all writers of the movement and their immediate successors. (6 credits)

Portuguese*Portuguese N-441 (411)***Portuguese Language and Literature**

Prerequisites: Spanish N-241 or equivalent and any 6 credits at the '400' level in Spanish. A course designed for advanced Spanish students. Readings in Portuguese begin as early as the second week of class. (6 credits)

NOTE: Students whose first language is Portuguese or who have previously studied Portuguese formally will not be admitted to this course.

Arabic*Arabic N-411 (411)***Introduction to Arabic**

This course is designed to give in one year the rudiments of the Arabic literary language. (6 credits)

NOTE: Students whose first language is Arabic or who have previously studied Arabic formally, will not be admitted to this course.

III. Linguistics*Associate Professor of Classics and Linguistics*

Charles R. Barton

Associate Professor of Spanish and Linguistics

John D. Grayson

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Indo-European Linguistics: major

The following courses, in an approved sequence, constitute a major:

Linguistics N-221, N-421, N-431, N-441, N-490, N-491.

English N-460 or Spanish N-412 or English N-318.

Greek N-241 or any 6 credits in Greek at the '400' level.

Latin N-240 or N-341 or any 6 credits in Latin at the '400' level.

Linguistics: joint major component

The following courses constitute the joint major component:

Linguistics N-221, N-421, N-431, N-441.

6 credits chosen from Arabic N-411; Linguistics N-490, N-491; English N-460; French N-312, N-313*, N-417, N-418*; Spanish N-412.

*Linguistics N-221 (211)***Introduction to Linguistics**

Prerequisite: Formal study of a language other than the student's mother tongue. This course will enable the students to become familiar with the basic elements which underlie all languages and will acquaint them with a number of varied linguistic patterns with emphasis on the analysis of languages having structural features which differ widely from those ordinarily encountered. (6 credits)

NOTE: Students who have credits for Linguistics 011 or 121 may not take this course for credits.

*Linguistics N-421 (423)***Non-Indo-European Structures**

Prerequisite: Linguistics N-221 or permission of the instructor. This course is intended to acquaint the student in depth with the structures of several languages differing markedly in their nature from Indo-European. Possible areas of study might be Eskimo, Finnish, Japanese, Swahili, Turkish, some Amerindian or Malayo-Polynesian language, etc. As a general rule, only four languages are investigated in a particular year. (6 credits)

*Linguistics N-431 (421)***Comparative Indo-European Linguistics**

Prerequisite: Linguistics N-221 or permission of the instructor. Through a comparative study of the phonology and morphology of the various branches of the Indo-European language family (Indo-Iranian, Hellenic, Italic, Germanic, Slavonic Baltic, etc.), this course will familiarize the student with the techniques used in linguistic reconstruction. Emphasis will be given to the development and differentiation of languages through time. (6 credits)

*Linguistics N-441 (422)***Advanced Linguistic Theory**

Prerequisite: Linguistics N-221. A study of current trends in linguistic theory with particular emphasis on transformational-generative and stratificational theory. The influence of de Saussure on present-day theoretical developments will be considered as well as that of the American structuralists. Tagmemic theory and case grammar will also be discussed. (6 credits)

*Linguistics N-490 (490)***Special Topics in Linguistics**

Prerequisite: Linguistics N-221 or equivalent.
This course offers an opportunity for detailed examination of a particular area of Linguistics. (6 credits)

NOTE: A student may take this course twice for credits, provided that a different subject is dealt with the second time. A student repeating Linguistics N-490 for credits will register under Linguistics N-491.

*Linguistics N-491 (491)***Special Topics in Linguistics**

Prerequisite: Permission of the Department. A student repeating Linguistics N-490 a second time registers for credits under Linguistics N-491. (6 credits)

English

Associate Professor and Chairman of the Department

Mervin Butovsky

Professors

Wynne Francis

Matthew J.C. Hodgart

Rytza Tobias

Rachel Wasserman

Associate Professors

Henry E. Beissel

Roslyn Belkin

Clark L. Blaise

Michael Brian

Audrey Bruné

Howard Fink

Malcolm B. Foster

Stanton de Voren Hoffman

David Ketterer

L. Elizabeth MacLean

David B. McKeen

Leonard Mendelsohn

Lewis J. Poteet

Abraham Ram

G. David Sheps

Richard J. Sommer

Assistant Professors

Gerald M. Auchinachie

Roger A. Bird

Patricia Morley

Edward Pechter

Eyvind Ronquist

Visiting Assistant Professor of English and Canadian Studies

John Moss

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

English: major

The following courses, in an approved sequence, constitute a major:

I. 6 credits chosen from either A or B.

A. English N-241, N-260, N-262, N-263, N-267.

A student may substitute for one of the requirements in this section one of N-225, N-226, N-227.

B. English N-281, N-282, N-283, N-287, N-231*, N-232*.

II. 18 credits chosen from English N-333, N-334, N-335, N-336, N-337, N-460, N-466.

III. 6 credits chosen from English N-374, N-375, N-376.

IV. 6 credits chosen from English N-244, N-343, N-344, N-348, N-440.

V. 18 additional credits in English, at the '300' and '400' level excluding N-311 (411).

English: joint major component

The following courses constitute the joint major component:

I. 6 credits from English N-231, N-232, N-281, N-282, N-283, N-387.

II. 6 credits from English N-333, N-334, N-335, N-336, N-337, N-460, N-466.

III. 6 credits from English N-374, N-375, N-376.

IV. 12 additional credits in English at the '300' and '400' level excluding N-311.

English: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

I. A. 6 credits chosen from English N-241, N-260, N-262, N-263, N-267.

A student may substitute for one of the requirements in this section one of English N-225, N-226, N-227.

B. 6 credits chosen from English N-231*, N-232*, N-281, N-282, N-283, N-287.

II. 18 credits chosen from English N-333, N-334, N-335, N-336, N-337, N-460, N-466.

III. 6 credits chosen from English N-374, N-375, N-376.

IV. 6 credits chosen from English N-244, N-343, N-344, N-348, N-440.

V. 18 additional credits in English, excluding N-211 and N-311, of which at least 6 credits must be chosen at the '400' level. At least 36 of the 60 credits taken within the honours programme must be at the '300' or '400' level.

English, Honours in Philosophy and
(See page 144)

English and Religion: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

Pattern A (emphasis on the historical)

A. English N-333, N-375 or N-376.

12 credits chosen from English N-333, N-334, N-335, N-336, N-337, N-348, N-374 or N-376.
6 credits chosen from English N-430, N-487, N-492.

B. Religion N-301*, N-352*.

6 credits chosen from Religion N-211, N-213, N-363.

Religion N-461.

6 credits chosen from Religion N-443, N-491.

6 credits chosen from Religion N-311, N-312, N-313, N-326*, N-327*, N-328*, N-465.

Pattern B (emphasis on the contemporary)

A. English N-333.

12 credits chosen from English N-244, N-375, N-335, N-336, N-344, N-348.

English N-337 or N-356.

6 credits chosen from English N-351, N-353, N-430, N-456, N-487, N-492.

B. 24 credits chosen from Religion N-213, N-241, N-351*, N-352*, N-363, N-443.

12 credits chosen from Religion N-311, N-312, N-313, N-326*, N-327*, N-328*, N-491.

It is strongly recommended that an honours student in English and Religion planning to do graduate work acquire a good reading knowledge of French, German, Greek, Hebrew or Latin.

*English N-201 (201)***English Language and Composition**

This course, administered by the TESL Centre, is designed for non-English students who have completed secondary school or its equivalent in a language other than English. The course encourages the development of effective written communication and improved reading comprehension so that the student may perform competently in his other university work.
(6 credits)

*English N-211 (211)***Composition**

This course is designed to help the student to develop skills in writing, research, and documentation, so that he may be able to prepare written accounts of his work clearly, concisely, and in a logically organized way. (6 credits)

*English N-225 (225)***Creative Writing: Poetry**

A seminar in the writing and criticism of poetry, including detailed discussion and written criticism of the student's work, and, at the discretion of the instructor, the study of selected poems. The student taking English N-225 is urged to take English N-231 as well. (6 credits)

*English N-226 (219)***Creative Writing: Prose**

A seminar in the techniques of short fiction, including investigations of and exercises in a variety of creative and technical problems, as well as analysis and criticism of the student's own work. Students may be required to read selected works of short fiction. (6 credits)

NOTE: Students who have credits for English N-219 may not take this course for credits.

*English N-227 (227)***Creative Writing: Drama**

A seminar in the writing of plays, including an exploration of dramatic forms and techniques. The student is expected to submit work of his own for discussion and analysis. (6 credits)

*English N-231 (261)***Introduction to Poetry**

A study of poetry and its forms with emphasis upon the art of close reading. (3 credits)

NOTE: Students who have credits for English N-261 may not take this course for credits.

*English N-232 (266)***Short Fiction**

A study of forms and techniques of the short story, the Novella, and what have come to be called in contemporary literature "fictions". (3 credits)

NOTE: Students who have credits for English N-266 may not take this course for credits.

*English N-237 (237)***Children's Literature**

A survey and analysis of literature for children, undertaken with the aim of developing a critical vocabulary and of arriving at workable standards of assessment. The kinds of literature discussed will include works written for adults but traditionally read by children as well, works specifically written or adapted for children, fairy tales and other children's versions of folklore and myth, nursery rhymes and other children's verse. The course will be of general interest to students of literature, and should prove especially helpful to those who teach children in the schools. (6 credits)

*English N-241 (221)***Major Writers in English**

An introduction to major periods of English literature through the study of such representative authors as Chaucer, Shakespeare, Marlowe, Jonson, Donne, Milton, Swift, Pope, Blake, Coleridge, Wordsworth, Keats, Shelley, Dickens, Hardy, Browning, Tennyson, Conrad, Lawrence, Yeats, Eliot, Woolf, Joyce. (6 credits)

NOTE: Students who have credits for English N-221 may not take this course for credits.

*English N-244 (244)***Modern Canadian Literature**

An introductory survey of Canadian prose and poetry written in or translated into English, from their origins to the present. (6 credits)

*English N-260 (217)***Myth in Literature**

The sources, development, and continuing function of some central Mediterranean myths. The course defines the nature and function of myth, traces the most influential myths from their first appearance in literature to their transformation in the Christian art of Europe, and goes on briefly to examine their use by contemporary writers. The primary texts include the Bible in the King James version, and such works as the Apocrypha, the *Odyssey*, selected Greek tragedies, and Ovid's *Metamorphoses*. (6 credits)

NOTE: Students who have credits for English N-217 may not take this course for credits.

*English N-262 (262)***Medieval Literature in Translation**

An introductory study of some major works in England and Europe between 400 and 1400, beginning with St. Augustine, and including examples of epic, Grail literature and courtly romance, such as *Beowulf*, *The Song of Roland*, *The Cid*, Chrétien de Troyes' *Parsifal*, *Tristan and Isolde*, *The Romance of the Rose*, and parts of Dante's *Divine Comedy*. (6 credits)

NOTE: Students who have credits for English N-240 may not take this course for credits.

*English N-263 (240)***European Literature from the end of the Middle Ages to the onset of Modernism**

A study of some of the classical works of European literature from Dante to Dostoevsky, including such writers as Boccaccio, Rabelais, Cervantes, Rousseau and Goethe, with emphasis on evolving cultural patterns leading from Faith to Reason and beyond. (6 credits)

NOTE: Students who have credits for English 040, 241 or 243 may not take this course for credits.

*English N-267 (267)***The Origins of Drama**

An introductory study of Greek and Roman dramatists, and the medieval drama, both English and Continental. The course will be concerned with dramatic types, theory and form, and with the significance of this drama to the later English stage. (6 credits)

*English N-281 (281)***Tragedy: A Literary Mode**

A study of varieties of tragic form and sensibility in Western literature. The course includes writers chosen from antiquity to the

present, both within and outside the English tradition, such as Shakespeare, Euripides, Hardy, Tolstoy, Webster, Racine, Faulkner, Buchner, Rilke and Chekhov. (6 credits)

English N-282 (282)

Comedy: A Literary Mode

A study of the varieties of comic form and sensibility in Western literature. The course includes writers chosen from antiquity to the present, both within and outside the English tradition, such as Jonson, Aristophanes, Sterne, Cervantes, Meredith, Balzac, Gogol, Molière, Holberg, Leacock, Morgenstern and Amis. (6 credits)

English N-283 (283)

Satire: A Literary Mode

Its vision and its form, traditional and contemporary. The course includes writers chosen from antiquity to the present, both within and outside the English tradition, such as Chaucer, Juvenal, Lucian, Swift, Erasmus, Voltaire, Thackeray, Grass, Roth, Beckett, Waugh, Richler and Orwell. (6 credits)

English N-287 (287)

Critical Approaches to Literature

A study of the variety of major theories and their practical application to works of literature, with special emphasis on 20th century criticism. (6 credits)

English N-311 (411)

Non-Fiction Writing

This course is designed for students already in control of the basic techniques of composition who wish to further develop their ability in writing in a variety of genres, including feature articles, news stories, biographies, reports and reviews. The student's work is given analysis and evaluation by the instructor and by fellow classmates in a workshop setting. (6 credits)

NOTE: Students who have credits for English N-411 may not take this course for credits.

English N-318 (280)

History and Structure of the English Language

The course deals with the linguistic and historical development of the English language. The influence of language changes upon the literature will also be considered. (3 credits)

NOTE: Students who have credits for N-280 may not take this course for credits.

English N-333 (431)

English Renaissance Literature

A study of poetry and prose in England from More to Milton, including such writers as Erasmus, Wyatt, Surrey, Sidney, Spenser, Bacon, Donne, the Metaphysical poets, Jonson, the Caroline lyricists, Browne. (6 credits)

NOTE: Students who have credits for English N-431 may not take this course for credits.

English N-334 (434)

English Literature of the Restoration and 18th Century

A study of poetry and prose from the 1660's to the 1780's, including such major writers as Dryden, Swift, Pope and Johnson. (6 credits)

NOTE: Students who have credits for English N-434 may not take this course for credits.

English N-335 (435)

English Literature of the Romantic Period

A study of poetry and prose, chiefly that of Blake, Wordsworth, Coleridge, Byron, Shelley and Keats. (6 credits)

NOTE: Students who have credits for English N-435 may not take this course for credits.

English N-336 (436)

Victorian Literature

A study of English poetry and prose from the 1830's to the end of the nineteenth century, including such major writers as Tennyson, Browning, Hopkins, Carlyle, Newman, Ruskin, Dickens, Thackeray and Eliot. (6 credits)

NOTE: Students who have credits for English N-436 may not take this course for credits.

English N-337 (437)

Modern British and American Literature

A study of works in English from what has now emerged as the "Modern" period, extending from the turn of the century to World War II, and including such writers as Conrad, Joyce, Lawrence, Eliot, Yeats, Dylan Thomas, Stevens, Hemingway, Faulkner, Frost and Synge. (6 credits)

NOTE: Students who have credits for English N-437 may not take this course for credits.

*English N-343 (246)***Canadian Literature from the 1820's to the 1930's**

Prerequisite: Second year standing. A study of prose, poetry and drama, principally written in English, including such writers as McCulloch, Haliburton, Moodie, DeMille, Kirby, Lampman, Roberts, Pratt, Grove and Stead. (6 credits)

*English N-344 (444)***Modern Canadian Literature**

Prerequisite: English N-244. A study of prose, poetry and drama, principally written in English, from the 1930's to the present, including such writers as Laurence, MacLennan, Richler, Lowry, Klein, Callaghan, Layton, Livesay, Birney, Avison, Reaney, Nowlan and Ryga. (6 credits)

NOTE: Students who have credits for English N-444 may not take this course for credits.

*English N-348 (445)***American Literature**

A survey of the literature of the United States beginning with the early writers and their optimistic vision of a new society, and studying such problems as the transformations and inversions of the "American Dream" in such writers as Poe, Hawthorne, Melville, Twain, Whitman and Fitzgerald. (6 credits)

NOTE: Students who have credits for English N-445 may not take this course for credits.

*English N-351 (461)***Modern Poetry**

An examination of the characteristic elements of twentieth-century poetry, in the context of a study of such major poets as Yeats, Eliot, Pound, Stevens and Auden. (6 credits)

NOTE: Students who have credits for English N-461 may not take this course for credits.

*English N-353 (462)***Modern Drama**

A study of the main currents in Western drama since Ibsen. This course will include such representative playwrights as Chekhov, Lorca, Strindberg, Pirandello, O'Neill, Brecht, Pinter, Beckett and Weiss. (6 credits)

NOTE: Students who have credits for English N-462 may not take this course for credits.

*English N-356 (446)***Modern European Literature**

A survey of some of the major European writers

(in translation) of the last hundred years, including such writers as Dostoevsky, Kafka, Mann, Strindberg, Valéry, Pirandello and Sartre. (6 credits)

NOTE: Students who have credits for English N-446 may not take this course for credits.

*English N-363 (468)***English Renaissance Drama**

A study of English drama from the Tudor interlude to the closing of the theatres in 1642, including such dramatists as Kyd, Marlowe, Dekker, Jonson, Beaumont and Fletcher, Webster, Middleton and Ford. Some consideration will also be given to Shakespeare. (6 credits)

NOTE: Students who have credits for English N-468 may not take this course for credits.

*English N-364 (264)***Restoration and Eighteenth-Century Drama**

A study of the English stage from Dryden to Sheridan, including such dramatists as Etherege, Otway, Wycherley, Vanbrugh, Congreve, Gay, Lillo and Goldsmith. (3 credits)

*English N-365 (268)***The English Theatre in the Nineteenth Century**

A study of drama and dramatic modes from Shelley to Shaw, including forms such as the melodrama, the Gothic thriller, Romantic verse drama, comedy, farce, burletta, operetta, and the "new drama" of the 1890's. Among features that may be considered are innovations such as limelight and the act curtain, the emphasis on spectacle, and the phenomena of the star system and the actor-manager. (3 credits)

*English N-367 (463)***The English Novel from Defoe to Dickens**

A study of the origins and early development of the English novel, including such forms as the epistolary, the picaresque, the Gothic and historical novel, and such major writers as Fielding, Richardson, Sterne, Austen, Scott, the Brontës, George Eliot, Thackeray. (6 credits)

NOTE: Students who have credits for English N-463 may not take this course for credits.

*English N-368 (466)***The English Novel from Dickens to Conrad**

A study of the later Victorian and Edwardian novel, including such writers as Trollope, Meredith, Butler, Hardy, James, Wells, Galsworthy, Bennett and Forster. (6 credits)

NOTE: Students who have credits for English N-463 may not take this course for credits.

*English N-374 (454)***Chaucer**

A study of the major poetry of Chaucer, emphasizing *The Canterbury Tales* and *Troilus and Criseyde*. (6 credits)

NOTE: Students who have credits for English N-454 may not take this course for credits.

*English N-375 (253)***Shakespeare**

An examination of Shakespeare's artistic achievement in some of the major plays. (6 credits)

NOTE: Students who have credits for English N-253 may not take this course for credits.

*English N-376 (455)***Milton: The Puritan as Poet**

A study of Milton's poetry, informed by the aesthetic principles articulated in his prose and guided by his acknowledged admiration for Spenser. (6 credits)

NOTE: Students who have credits for English N-455 may not take this course for credits.

*English N-386 (486)***Literature, Ideology and Society**

Prerequisite: Second year standing. Studies in the relations between literature and its social, cultural and political environment. The content of this course may vary from year to year and may include such topics as the relations between modern Anglo-Irish literature and the Irish nationalist movement; social change and the evolution of forms of characterization in fiction; the theory and practice of the avant-garde; or confessional modes in literature in relation to social and political messianism. (6 credits)

*English N-425 (418)***Advanced Creative Writing: Poetry**

Prerequisite: English N-225 or approved work. A workshop in the writing of poetry. The student is expected to enter this course with competence in the fundamentals of the form, and to go on, by experimenting more fully with its materials and techniques, to demonstrate his further progress in the craft. (6 credits)

NOTE: Students who have credits for English N-418 may not take this course for credits.

*English N-426 (419)***Advanced Creative Writing: Prose**

Prerequisite: English N-226 or approved work. A workshop in the writing of fiction. The student is expected to enter this course with competence in the fundamentals of the form, and to go on, by experimenting more fully with its materials and techniques, to demonstrate his further progress in the craft. (6 credits)

NOTE: Students who have credits for English N-419 may not take this course for credits.

*English N-427 (427)***Advanced Creative Writing: Drama**

Prerequisite: English N-227 or approved work. A workshop in the writing of plays. The student is expected to enter this course with competence in the fundamentals of the form, and to go on, by experimenting more fully with its materials and techniques, to demonstrate his further progress in the craft. (6 credits)

*English N-430 (475)***The Aesthetic and Religious Experience in Literature**

Prerequisite: Second year standing. An interdisciplinary course which explores the relationships between literature and religion through practical criticism, literary theory, aesthetics and theology. (6 credits)

NOTE: Students who have credits for English N-475 may not take this course for credits.

*English N-440 (440)***The Literatures of Canada and the United States**

Prerequisite: One of English N-244, N-348. It would be to the student's advantage to enter this course with knowledge of both literatures. Studies in common and contrasting problems in the two national literatures. (6 credits)

*English N-442 (442)***World Literatures Written in English**

Prerequisite: Second year standing. Studies of works in English from selected areas such as the Caribbean, New Zealand, Australia, Asia and Africa, by such writers as Naipaul, Walcott, Ashton-Warner, White, Narayan, Paton, Lessing and Achebe. (6 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that different areas are dealt with the second time. He will register the second time under English N-443.

English N-443 (443)

World Literatures Written in English

A student repeating English N-442 for credits registers under English N-443. (6 credits)

English N-448 (448)

Special Studies in Canadian Literature

Prerequisite: One of English N-343, N-344.

An intensive study of a limited aspect of Canadian literature which may deal, from year to year, with an individual author or work, or a particular problem, such as "Regionalism and the Diction of Canadian Poetry", "Prairie Fiction", or "Canadian Drama". (3 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time under English N-449.

English N-449 (449)

Special Studies in Canadian Literature

A student repeating English N-448 for credits registers under English N-449. (3 credits)

English N-456 (464)

Special Studies in Modern Fiction

Prerequisite: One of English N-344, N-337, N-356. A detailed study of an individual author or work of fiction, or a specific problem, in any modern literature written in or translated into English. (3 credits)

NOTE: Students who have credits for N-464 may not take this course for credits.

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time under English N-457.

English N-457 (464)

Special Studies in Modern Fiction

A student repeating English N-456 for credits registers under English N-457. (3 credits)

English N-459 (459)

Contemporary Literature

Prerequisite: One other course in Modern Literature, e.g. English N-344, N-337, N-348, N-356, N-351 or N-353. A study of poetry, prose fiction and drama, written in or translated into English since the Second World War. This course is intended for the student whose exploration of modern literature has already suggested to him something of the radical experimentation in form which characterizes contemporary literature. (6 credits)

English N-460 (481)

Old English

A study of the language and literature of the Anglo-Saxon era, chiefly of the *Beowulf* epic. (6 credits)

NOTE: Students who have credits for English N-481 may not take this course for credits.

English N-466 (483)

Middle English Literature

A study of literature written in the English dialects from 1200 to 1500, including works such as *Sir Gawain and the Green Knight* and other romances, early lyrics, religious prose, drama, and selections from Layamon's *Arthurian Brut*, Langland's *Piers Plowman*, and Malory's *Morte Darthur*. (6 credits)

NOTE: Students who have credits for English N-483 may not take this course for credits.

English N-476 (453)

Special Studies in Shakespeare

Prerequisite: English N-375. An exploration in depth of individual plays and poems by Shakespeare, as well as particular problems presented by them. The topic considered in any one year might be "the Problem Plays", "the Romances", "Mask and Disguise", or "the Shakespeare play as Satire". (3 credits)

NOTE: Students who have credits for N-453 may not take this course for credits.

English N-478 (478)

Special Studies in Renaissance Literature

Prerequisite: One of English N-333, N-363. This course is designed for an intensive study of a limited aspect of the poetry, prose or drama of the period, and may deal, from year to year, with such topics as "the Sonnet Sequences", "the Metaphysical Poets", "Rhetoric, Poetics and Critical Theory" and "Renaissance Fiction". (3 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time under English N-479.

English N-479 (479)

Special Studies in Renaissance Literature

A student repeating English N-478 for credits registers under English N-479. (3 credits)

*English N-487 (467)***Theories and Criticism of Literature**

Prerequisite: English N-287. This course explores problems in criticism and theoretical approaches to literary art and experience from antiquity to the present, including such problems as symbol and metaphor, instruction and delight, mimesis and catharsis, form and inspiration, audience and social value, convention and genius. (6 credits)

NOTE: Students who have credits for English N-467 may not take this course for credits.

*English N-492 (492)***Seminar in a Special Subject**

Prerequisite: Second year standing. This course is designed to provide an opportunity for study and discussion of literature at a relatively advanced level. It is taught, from year to year, by different members of the English Department, and the subject changes to accord with the special interests of each instructor. (6 credits)

*English N-493 (493)***Seminar in a Special Subject**

A student repeating English N-492 for credits registers under English N-493. (6 credits)

*English N-496 (496)***Seminar in a Special Subject**

Prerequisite: Second year standing. This course is designed to provide an opportunity for study and discussion of literature at a relatively advanced level. It is taught, from year to year, by different members of the English Department and the subject changes to accord with the special interests of each instructor. (3 credits)

*English N-497 (497)***Seminar in a Special Subject**

A student repeating English N-496 for credits registers under English N-497. (3 credits)

Fine Arts

Professor and Chairman of the Department
Edwy F. Cooke

Professor of Music in Residence
Franz-Paul Decker

Professors
Alfred Pinsky
Leah Sherman

Associate Professors
Christopher Gabriel-Lacki
Yves J. Gaucher
George Hardy
Stanley Horner
Judith Kelly
Jerome Krause
F.J. Miller
G. Molinari
Frank Mulvey
John Ivor Smith
Norma Springford

Visiting Associate Professor
J. Russell Harper

Assistant Professors
Donald Andrus
Francis Barry
Wolfgang Bottenberg
F. Graeme Chalmers
Philip Cohen
Gary W. Coward
Hélène Gagné
Jean Goguen
Ellen James
Dennis Jones
H.W. Jones
John Locke
Walter K. Sloan
Jerry Smoke
Barry Wainwright

Lecturer
Sandra Paikowsky

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Art Education (B.F.A.): major

The following courses, in an approved sequence, constitute a major:

NOTE: All students intending to apply for the Diploma in Art Education and Teacher Certification are required to take Education N-201 and one '400' level course in Education.

Option A

Art N-430*, N-432*, N-450.
12 to 24 credits in Art Seminar or Art History.

The remainder of 60 credits to be chosen from Visual Arts Studio credits. Among these a student may choose up to 9 credits in Moving Pictures.

NOTE: Option A is recommended for those wishing to teach Studio and/or Art History at the secondary level.

Option B

Art N-430*, N-432*, N-450.
18 credits in Visual Arts Studio.
6 credits in Art History.
24 credits to be selected from the following areas: Music, Theatre Arts, Moving Pictures.

NOTE: Option B is recommended for those wishing to teach the "expressive" arts at the elementary level and for those Art Education majors interested in inter-arts education.

Art History (B.F.A.): major

The following courses, in an approved sequence, constitute a major:

A. Art N-240, N-341, N-342, N-343, N-443, N-444, N-447.

B. A minimum of 12 credits or a maximum of 24 credits chosen from Art N-240, N-345, N-441, N-442, N-445, N-446, N-460.

With permission of the Department, a student may substitute up to 12 credits for courses in Art History listed under B. These substitute courses may be selected from other sections of the Fine Arts Department or from other departments. In any case the major will consist of a total of 60 credits.

NOTE: Students who have had the CEGEP equivalent of Art N-240 need not take it as part of their major programme but may elect to take it with the permission of the Department.

Art History: joint major component (B.A.)

The following courses constitute the joint major component:

Art N-342, N-343, N-444.
12 credits chosen from Art N-341, N-345, N-441, N-442, N-443, N-445, N-446, N-448*, N-449*.

Art History and Studio Art: major (B.F.A.)

The following courses, in an approved sequence, constitute a major:

Art N-240.
30 credits chosen from Art N-341, N-342, N-343, N-345, N-441, N-442, N-443, N-444, N-446, N-447.

A student may substitute one of Art N-460, N-461 for 6 credits in Art History.

30 credits in Studio courses in the Visual Arts which may include up to 6 credits in Theatre Arts N-255 or Moving Pictures N-211 or Music N-235 or N-335 or N-471* or N-485*

Art History: honours (B.F.A.)

The following courses constitute an honours programme provided the student maintains the required academic standing:

Art N-341, N-342, N-343, N-345.
30 credits selected from the following:
Art N-439, N-441, N-442, N-443, N-444, N-445, N-446, N-447, N-448*, N-449*.

Graphic Design: major (B.F.A.)

The following courses, in an approved sequence, constitute a major:

12 credits in lecture and/or seminar courses in Art or History including a minimum of six credits in Art History.

Art N-338*, N-370*, N-371*, N-372*.
18 credits chosen from Art N-373*, N-374*, N-471*, N-472*, N-473*, N-474*, N-475*, N-476*.
18 additional Studio Art credits.

NOTE: Students are advised to take Art N-370 and N-371* concurrently in the first term of the first year.*

Visual Arts: major (B.F.A.)

The following courses, in an approved sequence, constitute a major:

12 credits in lecture and/or seminar courses in Art or Art History including a minimum of six credits in Art History.

48 credits in Studio courses in the Visual Arts which may include up to six credits from Theatre Arts N-255, N-312; Moving Pictures N-311, N-312; Music N-231*, N-235, N-335, N-421, N-465*, N-471*, N-485*, N-486*.

Visual Arts: joint major component (B.A.)

The following courses constitute the joint major component:

From 12 to 18 credits chosen from Art N-210*, N-211*, N-311*, N-312*, N-331*, N-332*, N-338*, N-370*, N-400*, N-401*, N-438*.

The remainder of 30 credits chosen from Art N-341, N-342, N-343, N-345, N-441, N-443, N-444, N-445, N-446.

Art**Art N-210 (211)****Image and Idea, Drawing**

Prerequisites: CEGEP Studio Art or Art 001 and 002 or the equivalent. An exploration of drawing as space, the figure, visual skills, graphic image. (3 credits)

Art N-211 (211)**Image and Idea, Painting**

Prerequisite: CEGEP Studio Art or Art 001 and 002 or the equivalent. An exploration of painting, colour, style, image, visual skills, and the basic technology of painting materials. (3 credits)

Art N-232 (232)**Introduction to Architecture and Sculpture**

To enable the student to understand and appreciate great works in architecture and sculpture and to develop a discriminative understanding of three-dimensional form in design and in his architectural environment. The main types, styles, and techniques of these arts are explained and illustrated. To understand their significance, the student is encouraged to become familiar with great examples of these arts through pictorial reproductions, slides, models, museum visits, and field trips. (6 credits)

NOTE: Students who have credits for Art 032 may not take this course for credits.

Art N-240 (240)**Introduction to Art History**

A study of selected works which represent outstanding and significant achievements in the visual arts. (6 credits)

NOTE: Students who have had the CEGEP equivalent of Art N-240 need not take it as part of their major programme but may elect to take it with the permission of the Department.

Art N-249 (249)**Canadian Sculpture and Architecture**

A study of the more important developments of Canadian architecture and sculpture from

indigenous forms to contemporary work. (6 credits)

NOTE: Students who have credits for Art 049 may not take this course for credits.

Art N-251 (251)**Art for Classroom Use**

A practical and theoretical course of particular use to teachers and those interested in early childhood development. Concepts of art education, the use of materials and techniques are considered in relation to classroom situations. Students are introduced to various art media including painting, collage, construction, printing and modelling. The course includes the use of slides, films and selected readings. (6 credits)

Art N-311 (411, 412, 414)**Painting**

Prerequisite: Art N-211. A course in which various media and forms of expressions will be explored at the more advanced level. (3 credits)

NOTE: A student continuing Art N-311 registers for credits under Art N-312, N-411, N-412, N-413, N-414 consecutively.

Art N-312 (see Art N-311)**Art N-321 (221, 421, 422)****Sculpture**

Prerequisites: CEGEP Studio Art or Art 001 and 002 or the equivalent. First works are generally in traditional materials (clay, plaster, wood, concrete, steel, etc.) but in fact, any materials may be used. (3 credits)

NOTE: A student continuing Art N-321 registers for credits under Art N-322, N-421, N-422, N-423, N-424 consecutively.

Art N-322 (see Art N-321)**Art N-331 (331)****Studio Art I**

An introduction to studio art including drawing, painting, design, sculpture and related media. (3 credits)

NOTE: A student continuing Art N-331 registers for credits under Art N-332.

Art N-332 (see Art N-331)**Studio Art II**

Prerequisite: Art N-331. Continuation of Art N-331. (3 credits)

NOTE: Students who have credits for Art N-360 (360) may not take this course for credits.

Art N-338 (497)

Photography

Prerequisites: CEGEP Studio Art or Art 001 and 002 or the equivalent. The use of photography and light as a source of image, ideas. (3 credits)

NOTE: With the permission of the Department a student may take this course twice for credits. He will register the second time for credits under Art N-438.

Art N-341 (241)

Art in the Ancient World

This course will consider the emergence of art and architecture in the ancient world, giving particular attention to developments in Egypt, Greece and Rome. (6 credits)

Art N-342 (242)

The Renaissance in Italy

A survey of painting, sculpture and architecture in Italy during the fifteenth and sixteenth centuries. (6 credits)

Art N-343 (243)

The History of Nineteenth Century Art

Prerequisite: Art N-240. Starting with the French Revolution and Neo-Classicism, this course will examine Romanticism, Realism, Naturalism, Impressionism, Post-Impressionism and other nineteenth century European movements leading to the emergence of Fauvism in the twentieth century. (6 credits)

Art N-345 (245)

Art in the Twentieth Century

Prerequisite: Art N-240. Commencing with Cubism, this course will examine the main movements and trends which have occurred in western art during this century. (6 credits)

Art N-370 (490)

Design

Prerequisites: CEGEP Studio Art or Art 001 and 002 or the equivalent. The dynamics and structures of two- and three-dimensional design. (3 credits)

NOTE: A student continuing Art N-370 registers for credits under Art N-470 the second time.

Art N-371 (491, 492, 493, 494, 495)

Graphic Design

Prerequisite: Art N-370; It is recommended that students majoring in Graphic Design take Art N-370 and N-371 concurrently. The application of visual ideas to communication processes. (3 credits)

NOTE: A student continuing Art N-371 registers for credits under Art N-372, N-373, N-374, N-471, N-472, N-473, N-474, N-475, N-476.

Art N-372 (see Art N-371)

Art N-373 (see Art N-371)

Art N-374 (see Art N-371)

Art N-381 (281, 481, 482)

Graphics

Prerequisite: Art N-210. An introduction to the graphic media; the history of the graphic arts and their relationships with other art forms. The student will investigate and experiment with various approaches, both traditional and contemporary. (3 credits)

NOTE: A student continuing Art N-381 registers for credits under Art N-382, N-481, N-482, N-483, N-484 consecutively.

Art N-382 (see Art N-381)

Art N-400 (410)

Drawing

Prerequisite: Art N-210. A drawing course in which various media and forms of expression will be explored at the more advanced level. Lectures and studio periods. (3 credits)

NOTE: A student continuing Art N-400 registers for credits under Art N-401 the second time.

Art N-401 (see Art N-400)

Art N-411 (see Art N-311)

Art N-412 (see Art N-311)

Art N-413 (see Art N-311)

Art N-414 (see Art N-311)

Art N-421 (see Art N-321)

Art N-422 (see Art N-321)

Art N-423 (see Art N-321)

Art N-424 (see Art N-321)

Art N-430 (452)

Multi-Media

Prerequisites: Four studio courses, registration in art education major or permission of the Department. The technology of video, film, slides, sound, etc. as media for the artist and art educator. (3 credits)

Art N-432 (452)

Crafts

Prerequisites: Four studio courses, registration in the art education major or written permission of the Department. The basis of crafts such as ceramics, textiles, metal work, leathercraft, etc. as potential media for the artist and art educator. (3 credits)

Art N-433 (433)**Materials and Methods of the Artist**

Prerequisite: Permission of the Department.
Through a series of special projects this course will familiarize the student with some of the various materials, techniques and other aspects of the artist's craft. Since special emphasis will be given to historical techniques, this course is particularly recommended to all students in art history. Lectures and studio periods. (3 credits)

NOTE: A student continuing Art N-433 registers for credits under Art N-434 the second time.

Art N-434 (see Art N-433)**Art N-435 (435)****Studio Workshop: Special Studies**

Prerequisites: 3rd year advanced standing and permission of the Department. This course will provide the opportunity for a limited number of students to pursue advanced studies in the studio area. (3 credits)

NOTE: With the permission of the Department a student may take this course twice for credits. He will register the second time for credits under Art N-436.

Art N-436 (see Art N-435)**Art N-438 (497)****Photography**

Prerequisites: Art N-338 and permission of the Department. A student repeating Art N-338 for a second time registers under Art N-438 for credits. (3 credits)

Art N-439 (439)**Iconography**

Prerequisite: Art N-240 or CEGEP equivalent. This course will examine recurring visual symbols in Western Art which are derived from Classical or Christian literature. (6 credits)

Art N-441 (441)**The History of Medieval Art**

Prerequisite: Art N-240. This course will survey the growth of European art and architecture from Early Christian times through the fourteenth century. (6 credits)

Art N-442 (442)**The Renaissance in Northern Europe**

Prerequisite: Art N-240 or Art N-342. This course will investigate the development of art in France, Flanders, Germany and Austria in the fifteenth and sixteenth centuries. (3 credits)

Art N-443 (443)**History of Baroque and Rococo Art**

Prerequisite: Art N-240. This course will investigate the major achievements in Dutch, Flemish, English, French, Italian, Spanish, German and Austrian art and architecture in the seventeenth and eighteenth centuries. (6 credits)

Art N-444 (444)**The Arts in Canada**

Prerequisite: Art N-240. A history of the arts in Canada from the 17th century to the present day. Where relevant, special attention will be given to those European and American influences which have shaped its growth. (6 credits)

Art N-445 (445)**American Art and the European Background**

Prerequisite: Art N-240. A survey of American Art from earliest colonial times into the 20th century, viewed against the background of those European developments which have significantly affected it. (6 credits)

Art N-446 (446)**History of Modern Architecture**

An examination of the major building styles from the Georgian era through the 20th century with emphasis on the contributions of individual architects from Louis Sullivan to Mies van der Rohe. (6 credits)

Art N-447 (447)**Special Studies in the History of Art**

Prerequisites: Two courses in art history. Students in this course will examine and discuss selected aspects of art history. The areas chosen for consideration will vary from year to year according to the instructor's field of specialization. All students will be required to undertake research projects, and to submit papers based on their investigations. (6 credits)

Art N-448 (448)**Special Topics in Art History**

Prerequisites: Two full courses in Art History or permission of the Department. A seminar for advanced students which will provide an opportunity for the study of limited and more specialized aspects of Art History. (3 credits)

NOTE: With the permission of the Department a student may take this course twice for credits. He will register the second time for credits under Art N-449.

Art N-449 (449)

Special Topics in Art History

Prerequisite: Permission of the Department. A student repeating Art N-448 for a second time registers under Art N-449 for credits. (3 credits)

Art N-450 (450)

Seminar in Art Education

Prerequisite: Art education majors or permission of the Department. The development of a philosophy of art education on the basis of studio experiences, readings, the observation of and participation in teaching situations, etc. (6 credits)

Art N-460 (431)

Analysis of Great Works of Art

A course in art principles, through the formal analysis of selected masterpieces of painting and sculpture. The student is led to a fuller comprehension of the nature of formal order in the arts. (6 credits)

Art N-461 (461)

Introduction to Aesthetics

This course provides an introduction to the philosophy and psychology of aesthetics. Topics will include the nature of beauty and art, aesthetic experience, symbolic thinking and expression, art as symbolic activity, art as communication and the principles of formal organization underlying all the arts: music, poetry, drama, sculpture, and painting. (6 credits)

Art N-470 (see Art N-370)

Art N-471 (see Art N-371)

Art N-472 (see Art N-371)

Art N-473 (see Art N-371)

Art N-474 (see Art N-371)

Art N-475 (see Art N-371)

Art N-476 (see Art N-371)

Art N-481 (see Art N-381)

Art N-482 (see Art N-381)

Art N-483 (see Art N-381)

Art N-484 (see Art N-381)

Moving Pictures

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Moving Pictures: joint major component (B.A.)

The following courses constitute the joint major component:

30 credits chosen from Moving Pictures N-211, N-212, N-311, N-312, N-411, N-412, N-431.

NOTE: Students are required to bear the cost of film and other materials.

Moving Pictures N-211 (Cinema 257)

History of Film

A study of the history of the film from its beginning to the present. The forms, functions, aesthetics and technology of the film will be dealt with through the examination of individual works. (6 credits)

NOTE: Students who have credits for Cinema 057 may not take this course for credits.

Moving Pictures N-212 (Cinema 258)

Film Aesthetics

A study of the aesthetics of the film. Symbolism, realism, expressionism, abstraction and other forms of film art will be studied in relation to the great schools and theoreticians in the field. (6 credits)

NOTE: Students who have credits for Cinema 058 may not take this course for credits.

Moving Pictures N-311 (Cinema 211)

An Introduction to Film-Making I

Prerequisites: Moving Pictures N-211 or N-212 previously or concurrently and written permission of the Department. An introductory course in the theory and practice of film-making. This course will stress the individual student's creative efforts. Lectures and laboratory periods. (6 credits)

Moving Pictures N-312 (Cinema 212)

Animation I

Prerequisites: Moving Pictures N-311 and written permission of the Department. The theory and practice of animation. Lectures and laboratory periods. (6 credits)

NOTE: With permission of the Department a student may take this course twice for credits. He will register the second time for credits under Moving Pictures N-313.

Moving Pictures N-313 (313)

Animation Cinema

Prerequisites: Moving Pictures N-312 and written permission of the Department. A student repeating Moving Pictures N-312 for a second time registers for credits under Moving Pictures N-313. (6 credits)

Moving Pictures N-411 (Cinema 411)**An Introduction to Film-Making II**

Prerequisites: Moving Pictures N-311 and written permission of the Department. An intermediate course in the theory and practice of film-making. The course will stress the individual student's creative and experimental efforts. Lectures and laboratory periods. (6 credits)

Moving Pictures N-412 (Cinema 412)**Film-Making III**

Prerequisites: Moving Pictures N-212 and N-311 and written permission of the Department. The completion of an advanced film project including its writing, design, production and editing. (6 credits)

NOTE: With permission of the Department a student may take this course twice for credits. He will register the second time for credits under Moving Pictures N-413.

Moving Pictures N-413**Film-Making III**

Prerequisites: Moving Pictures N-412 and permission of the Department. A student repeating Moving Pictures N-412 for a second time registers for credits under Moving Pictures N-413. (6 credits)

Moving Pictures N-420 (420)**Special Topics in Cinema**

Prerequisites: Two full courses in Moving Pictures or permission of the Department. A course for advanced students which will provide an opportunity for the study of limited and more specialized aspects of cinema. (3 credits)

NOTE: With the permission of the Department a student may take this course twice for credits. He will register the second time for credits under Moving Pictures N-421.

Moving Pictures N-421 (421)**Special Topics in Cinema**

Prerequisite: Permission of the Department. A student repeating Moving Pictures N-420 for a second time registers for credits under Moving Pictures N-421. (3 credits)

Moving Pictures N-431 (Cinema 431)**Sound for Film**

Prerequisites: Moving Pictures N-311 and written permission of the Department. Creative and experimental exercises in the use of sound with moving images. (6 credits)

Music

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Music: major (B.A., B.F.A.)

The following courses, in an approved sequence, constitute a major:

- A. Music N-235 or equivalent.
- B. Music N-231* or N-232, N-321, N-335, N-341.
- C. The remainder of 60 credits to be chosen from '300' and '400' level courses in Music in consultation with the Department.

NOTE: A student granted exemption from Music N-235 will substitute another 6 credits in Music chosen in consultation with the Department.

Music: joint major component (B.A.)

The following courses constitute the joint major component:

Music N-235 or equivalent.
The remainder of 30 credits in Music, including at least 12 at the '300' and '400' level, to be chosen in consultation with the Department.

NOTE: A student granted exemption from Music N-235 will substitute another 6 credits in Music chosen in consultation with the Department.

Music N-231 (231)**Private Study A I**

Prerequisite: Permission of the Department. This course offers individual or group instruction in an approved area of music with a qualified teacher of the student's choice. Students should understand that fees will vary with individual instructors. (3 credits)

NOTE: A student continuing Music N-231 registers for credits under Music N-331 and Music N-431.

Music N-232 (232)**Private Study B I**

Prerequisite: Permission of the Department. This course offers individual or group instruction in an approved area of music with a qualified teacher of the student's choice. Students should understand that fees will vary with individual instructors. (6 credits)

NOTE: A student continuing Music N-232 registers for credits under Music N-332 and Music N-432.

*Music N-233 (233)***Understanding Music**

A course in analytical listening for the student who has little or no musical background. The works studied represent the major styles and idioms of Western music. (3 credits)

*Music N-235 (234)***Musicianship**

Prerequisite: CEGEP Music Programme or equivalent or permission of the Department. A workshop in the organization and uses of sound materials. The programme integrates theory with composition, analysis and guided listening. Opportunities are provided for self-paced study in a variety of traditional, contemporary and experimental areas, including music for film and T.V. Classroom and guided listening. (6 credits)

NOTE: Students who have credits for Music 034 or 235 may not take this course for credits.

*Music N-245 (245)***Music History and Society**

A survey of musical styles in their social context, from pre-history to the present day. While the emphasis is on the mainstream of the western tradition, attention is also given to folk, popular and jazz styles, as well as the music of other cultures. (6 credits)

NOTE: Students who have credits for Fine Arts 245 or Music 045 or 145 may not take this course for credits.

*Music N-321 (423)***Aural Perception**

A self-paced workshop in ear training. Hearing skills are developed through exercises in aural concentration, recall, reproduction, imagination, analysis, and transcription. The sound materials used range from traditional to electronic, natural and mechanical. Classroom and laboratory. (6 credits)

*Music N-331***Private Study A II**

Prerequisite: Music N-231 and permission of the Department. A student repeating Music N-231 for a second time registers under Music N-331 for credits. (3 credits)

*Music N-332***Private Study B II**

Prerequisite: Music N-232 and permission of the Department. (6 credits)

NOTE: A student continuing Music N-232 registers for credits under Music N-332.

*Music N-335 (271, 431, 461)***Theory/Composition Studio I**

Prerequisite: Music N-235 or permission of the Department. A study that co-ordinates exercises in part-writing and harmony with composition. Students work in a variety of traditional and contemporary forms, styles, and media. Classroom and laboratory. (6 credits)

*Music N-336 (336)***Ensemble Studio I: Early Music**

Prerequisite: Permission of the Department. A study through performance of the pre-classical vocal/instrumental repertoire. The fundamentals of style, interpretation, transcription and related problems will be studied in representative works. Whenever possible students will practice on models of historically authentic instruments. Classroom and practice periods. (3 credits)

NOTE: A student continuing Music N-336 registers for credits under Music N-337.

*Music N-337 (337)***Ensemble Studio I: Early Music**

Prerequisite: Permission of the Department. A student continuing Music N-336 registers for credits under Music N-337. (3 credits)

*Music N-341 (441)***Classic-Romantic Through 20th Century Music**

Prerequisite: 6 credits in Music or permission of the Department. A study of representative works from the 18th through the 20th century. Styles will be analyzed in light of the historical forces that have helped shape the course of Western music. Classroom and guided listening. (6 credits)

NOTE: A student continuing Music N-341 registers for credits under Music N-342.

*Music N-342 (441)***Seminar in History and Literature of Music**

Prerequisite: Permission of the Department. A student repeating Music N-341 for a second time registers for credits under Music N-342. (3 credits)

*Music N-343 (443)***Introduction to Non-Western Music**

Prerequisite: Permission of the Department.
A survey of the art, religious and folk music of non-European cultures. The study includes an examination of cross-cultural parallels and influences, instruments, notations, textures, techniques of performance and problems of interpretation. Illustrated with recordings and slides. (3 credits)

*Music N-345 (445)***Folk Music of North America**

Prerequisite: Permission of the Department.
A survey of the roots and development of traditional music in Canada, the United States, Mexico, Central America and the Caribbean. Areas covered include aboriginal, transplanted and hybrid forms; urban and rural musics; transcription and arrangement; the influence of folk music on popular art styles; ethno-musicological method. Illustrated with recordings, slides and whenever possible live performances. (3 credits)

*Music N-351 (251)***Stylistic and Formal Analysis**

Prerequisites: Two full courses in Music or permission of the Department. A comparative study of selected works representing various forms, styles and historical periods. (3 credits)

NOTE: With the permission of the Department a student may take this course twice for credits. He will register the second time for credits under Music N-352.

*Music N-352 (251)***Stylistic and Formal Analysis**

Prerequisite: Permission of the Department.
A student repeating Music N-351 for a second time registers for credits under Music N-352. (3 credits)

*Music N-421 (421)***Music in Education**

Prerequisite: Permission of the Department.
This course is designed to give the student a working knowledge of contemporary techniques of group instruction in music. At least one established or experimental method is covered in some depth; for example, Orff, Kodaly, Dalcroze, Martentot, Schafer, Dennis. While the main emphasis is on the cultivation of musicality in the preschool and elementary school child, the implications for music education in general are also explored. Classroom work includes opportunities for demonstration and practice teaching. (6 credits)

*Music N-431***Private Study A III**

Prerequisites: Music N-231 and N-331 and permission of the Department. A student continuing Music N-331 registers for credits under Music N-431. (3 credits)

*Music N-432***Private Study B III**

Prerequisites: Music N-332 and permission of the Department.

NOTE: A student continuing Music N-332 registers for credits under Music N-432. (6 credits)

*Music N-435 (435)***Theory Composition Studio II**

Prerequisite: Music N-335 or permission of the Department. A more advanced level continuation of Music N-335. While the study will emphasize contemporary writing techniques, it will include close work in traditional harmony and counterpoint. Classroom and laboratory. (6 credits)

*Music N-436 (436)***Ensemble Studio II: Traditional/Contemporary**

Prerequisite: Permission of the Department. A study, through performance, of selected works from the traditional and contemporary repertoires. The works studied are determined by classroom needs and the particular skills of each student. (3 credits)

NOTE: A student continuing Music N-436 registers for credits under Music N-437.

*Music N-437 (437)***Ensemble Studio II: Traditional/Contemporary**

Prerequisite: Permission of the Department. A student continuing Music N-436 registers for credits under Music N-437. (3 credits)

*Music N-465 (465)***Seminar in Performance**

Prerequisite: Permission of the Department.
This course examines selected problems in the development of performance skills. The areas covered are, whenever possible, determined by the specific interests of students. Topics for consideration include: technique; practice; style; interpretation; accompaniment; ensemble; teaching children; the adult student. (3 credits)

NOTE: With permission of the Department, a student may take this course twice for credits. He will register the second time for credits under Music N-466.

Music N-466 (465)**Seminar in Performance**

Prerequisite: Permission of the Department. A student repeating Music N-465 for a second time registers for credits under Music N-466. (3 credits)

Music N-471 (471)**Independent Study**

Prerequisite: Permission of the Department. An independent study intended primarily for the student who wishes to do research in an area of his own choice. He may alternatively elect to compose a large scale work or perform an approved programme in public recital. Staff members will be available for consultation. (3 credits)

NOTE: With permission of the Department, a student may take this course twice for credits. He will register the second time for credits under Music N-472.

Music N-472**Independent Study**

Prerequisite: Permission of the Department. A student repeating Music N-471 for a second time registers for credits under Music N-472. (3 credits)

Music N-485 (485)**Contemporary Idioms and Media**

Prerequisite: Permission of the Department. A study in depth of selected developments in contemporary music. In a given term, the study may include one or more of the following: Music for film, T.V., stage and mixed media; Jazz; Rock; electronic and computer composition, aleatory, free form, "brain", and experimental musics. Whenever possible provision will be made for public performance of student works. (3 credits)

NOTE: With permission of the Department, a student may take this course twice for credits. He will register the second time for credits under Music N-486.

Music N-486**Contemporary Idioms and Media**

Prerequisite: Permission of the Department. A student repeating Music N-485 for a second time registers for credits under Music N-486. (3 credits)

Theatre Arts

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Theatre Arts: major (B.F.A.)

The following courses, in an approved sequence, constitute a major:

Theatre Arts N-212, N-247, N-255, N-421.
36 credits chosen from Theatre Arts N-312, N-315, N-331, N-340, N-355, N-413, N-431, N-455.

Theatre Arts: joint major component (B.A.)

The following courses constitute the joint major component:

Theatre Arts N-212, N-255.
18 credits chosen from Theatre Arts N-247, N-312, N-315, N-331, N-340, N-355, N-413, N-421, N-431, N-455.

Theatre Arts N-212 (212)**Stage Design I**

An introductory course in the design of stage scenery. Lectures and studio periods. (6 credits)

NOTE: Students who have credits for Fine Arts 212 or Drama 212 may not take this course for credits.

Theatre Arts N-247 (247)**The History of the Theatre**

Study of the development of theatrical production and the drama brings before the student the whole shifting scene of manners and customs, ideals and moral standards of the ages. This course traces the development of the theatre from the time of the modern talking-picture and legitimate stage, showing at each step how the culture of that age has been condensed and reflected in the vital and permanent art form of the theatre. (6 credits)

NOTE: Students who have credits for Fine Arts 247 or Theatre Arts 047 or Drama 247 may not take this course for credits.

Theatre Arts N-255 (252)**The Arts of Play Production I**

A study of the theories of the aesthetics of the theatre and their relationship to the arts contributing to production. Students will participate in a practical programme of one-act productions which will entail work in acting.

staging, lighting and scenic design. Lectures, labs and rehearsals. (6 credits)

NOTE: Students who have credits for Fine Arts 252 or Drama 252 may not take this course for credits.

Theatre Arts N-312 (412)

Stage Design II

Prerequisite: Theatre Arts N-212. A seminar in the conception and expression of space, form and movement on the stage through visual knowledge and use of light. (6 credits)

Theatre Arts N-315 (215)

Costuming for the Theatre

An introductory course in costuming for the theatre. Emphasis on history and construction. Students will participate in costuming productions for the Theatre Arts Section. Lectures and labs. (6 credits)

Theatre Arts N-331 (231)

Creative Drama in the Schools I

Prerequisite: Theatre Arts N-255. Principles of creative drama for elementary, intermediate and high schools. Theories and practices of techniques and direction. Lectures and labs. (6 credits)

Theatre Arts N-340 (440)

Theatre Administration

Prerequisite: Second year standing. A course in theatre administration covering office and plant management, production, touring and prepackaged plant costing; contracts, insurances, budgeting and seasonal planning; lectures with actual case studies in depth. (6 credits)

Theatre Arts N-355 (455)

The Arts of Play Production II

Prerequisite: Theatre Arts N-255. A study of the theories of the aesthetics of the theatre and their relationship to the arts contributing to production. Students will participate in mounting major productions for the Theatre Arts Section which will entail work in acting, staging, lighting and scenic design. Lectures, labs and rehearsals. (6 credits)

NOTE: Students who have credits for Drama 455 may not take this course for credits.

Theatre Arts N-413 (413)

Special Theatre Arts Techniques

Prerequisites: Theatre Arts N-212 and N-255. A seminar for advanced theatre arts students in make-up, masks, sound and special effects; property-making with special emphasis on the

usage of contemporary and found materials. This course will be divided into units covering the above subjects and will draw upon guest lecturers from the profession and industry. (6 credits)

Theatre Arts N-421 (421)

Voice and Speech

Prerequisite: Theatre Arts N-255. The theories and practices of communication for the theatre with emphasis on voice mechanics and production. Lectures and practice. (6 credits)

NOTE: Students who have credits for Drama 421 may not take this course for credits.

Theatre Arts N-431 (431)

Creative Drama in the Schools (Intermediate)

Prerequisite: Theatre Arts N-331. Discussions and demonstrations of theatre techniques of particular use in elementary, intermediate and high school drama. (6 credits)

Theatre Arts N-455 (456)

The Arts of Play Production III

Prerequisite: Theatre Arts N-355. A study of the advanced theories of the aesthetics of the theatre and their relationship to the arts contributing to production. Students will participate in a practical programme of productions which will entail work in acting, staging, voice production, pantomime, make-up, lighting and scenic design. Lectures and practice. (6 credits)

NOTE: Students who have credits for Drama 456 may not take this course for credits.

French

Associate Professor and Chairman of the Department

Paul J. H. d'Hollander

Professor in the Conservatory of Cinematographic Art
Serge Losique

Associate Professors

Léandre Bergeron

Michel Euvrard

Albert Jordan

Pierre Parc

Gilbert C. Taggart

Mair E. Verthuy

Assistant Professors

Claude Levy

Jean D. Schneider

Where to start studies in French at the university level:

French N-201 is designed for students who have had no French, or up to two years of high-school French in the Province of Quebec or equivalent.

French N-211 is intended for students who have had four years of high school French in the Province of Quebec or equivalent.

French N-214 is intended for students who have reasonable fluency in French and who have taken a one-year course beyond high school containing a substantial amount of written French.

French N-310 is intended for students whose schooling at the high school level has been conducted in French.

Students who do not fall into one of these categories are asked to consult the Department of French.

Since university-level credits cannot be given for French conversation only, all language courses contain a varying quantity of written work, grammatical study and civilization material, as well as oral work.

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

French: major

The following courses, in an approved sequence, constitute a major:

French N-214 or N-310, N-241, N-321, N-331.
24 credits in French at the '300' or '400' level chosen in consultation with the Department.

French: joint major component

The following courses constitute the joint major component:

French N-214 or N-310.

12 credits chosen from French N-241, N-321, N-331.

12 credits at the '300' or '400' level in French.

French: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

Pattern A (emphasis on Literature)

French N-214, N-241, N-310, N-321, N-331, N-491.

24 additional credits in French Literature.

Pattern B (emphasis on Linguistics)

French N-241, N-321, N-331.

French N-312, N-314, N-410, N-417.

18 credits in French at the '300' or '400' level.

French N-201 (201)

Beginners' French (Language I)

This course is designed for students who lack any previous training in French or who otherwise fail to meet the requirements for admission to French N-211. Intensive class instruction and laboratory drill should permit the student to master the basic structures of French in both their written and oral aspects. Satisfactory progress in this course will admit students to French N-211. Lectures and laboratory.
(6 credits)

NOTE: Students who have received credits toward their admission for high school French may not take this course for credits. Students whose first language is French or whose schooling

has been conducted in French will not be admitted to this course. Any student who is not sure of his standing must consult the chairman of the Department prior to registration. Students who have credits for French 001 may not take this course for credits.

Français N-202 (202)

Français élémentaire II

Préalable: Français N-201 ou équivalent ou deux ans de cours de français à l'école secondaire. Révision des structures de base du français élémentaire, élargissement du vocabulaire, pratique de la conversation, phonétique corrective. On cherchera à amener l'élève à une meilleure compréhension du français oral et à une plus grande aisance d'expression par des conversations dirigées et l'emploi d'enregistrements dans la salle de classe. Les connaissances de l'élève en français écrit seront maintenues et augmentées par un emploi judicieux d'exercices écrits. (demi-cours sans crédit)

Français N-203 (203)

Français élémentaire III

Préalable: Français N-202 ou équivalent ou trois ans de cours de français à l'école secondaire. Approfondissement des connaissances orales et écrites du français élémentaire. (demi-cours sans crédit)

Français N-211 (211)

Langue II et composition élémentaire

Préalable: Français N-201 ou quatre ans de cours de français à l'école secondaire ou équivalent ou l'autorisation du département. Ce cours, destiné aux étudiants ayant déjà une certaine préparation en français oral et écrit qui désirent parfaire leurs connaissances pratiques de la langue, comporte une étude intensive des structures au laboratoire, de nombreux devoirs écrits et l'analyse de certains textes français et québécois. La structure et le contenu du cours sont les mêmes pour toutes les sections, mais le choix des romans étudiés dépend de chaque professeur. (6 crédits)

NOTE: Les étudiants dont la première langue est le français ou qui ont fait leurs études en français ne seront pas admis dans ce cours. Les étudiants qui ont obtenu crédit pour le français 011 ou 212 ne recevront pas de crédits pour ce cours.

Français N-214 (214)

Langue III et composition

Préalable: Français N-211 ou 011 ou équivalent. Ce cours permet d'acquérir plus d'aisance et de correction dans l'expression orale et écrite en français. Il convient particulièrement aux étudiants qui ont l'intention d'enseigner le français ou de se spécialiser dans cette langue. Ce cours, donné entièrement en français, comprend la rédaction de compositions sur des sujets variés, des exposés oraux suivis de débats, l'étude de textes et de romans choisis par le professeur de chaque section, des exercices écrits menant à une meilleure connaissance de la grammaire et de la syntaxe. (6 crédits)

NOTE: Les étudiants qui ont fait leurs études en français ne seront pas admis dans ce cours. Les étudiants qui ont obtenu crédit pour le français 014 ne recevront pas de crédits pour ce cours.

Français N-222 (222)

La littérature française moderne

Préalable: Français N-211 ou 211 ou 011 ou équivalent. Aucun préalable n'est exigé pour les étudiants dont la première langue est le français. Ce cours est surtout destiné aux étudiants qui n'ont pas l'intention de se spécialiser en français et en particulier à ceux qui choisiraient leur cours obligatoire de littérature en littérature française. Le but du cours est d'encourager l'appréciation du roman comme oeuvre littéraire et comme expression significative de l'expérience occidentale des cent dernières années. (6 crédits)

NOTE: Ce cours ne peut servir de préalable à aucun autre cours. Les étudiants qui ont obtenu crédit pour le français 022 ne recevront pas de crédits pour ce cours.

Français N-241 (241)

Introduction à l'histoire de la culture et de la civilisation françaises

Préalable: Français N-211 ou 211 ou 011 ou équivalent. Abondamment illustré de projections, ce cours a pour but essentiel d'amener les étudiants à replacer la littérature dans son contexte historique, social, politique et artistique. (6 crédits)

*Français N-310 (411)***Composition avancée I**

Préalable: Français N-214 ou équivalent. Ce cours traite des différentes méthodes de la composition française: description, narration et dissertation: un intérêt particulier est cependant accordé à cette dernière ainsi qu'à l'analyse de textes vu leur importance pour les étudiants qui songent à préparer mémoires et thèses. (6 crédits)

NOTE: Les étudiants qui ont obtenu crédit pour le français 091 ne recevront pas de crédits pour ce cours.

*Français N-312 (412)***Histoire de la langue française**

Préalable: Français N-214. Ce cours retrace l'évolution de la langue du latin vulgaire au français contemporain. Les étapes successives de cette évolution sont illustrées par l'étude de textes appropriés. Le cours est donné en français. (6 crédits)

*Français N-313 (413)***La phonétique française**

Préalable: Français N-214 ou équivalent; crédits également admissibles pour les étudiants dont la langue maternelle est le français: 6 crédits en langue ou en littérature françaises. Etude systématique des habitudes articulatoires du français en comparaison avec celles de l'anglais. Introduction aux principes de l'analyse phonologique; groupes consonantiques possibles ou impossibles dans les deux langues. Etude de l'aspect physiologique de la parole; propriétés des voyelles et des consonnes en français. Etude des phénomènes prosodiques: intonation, rythme, accent. Aperçu de la phonétique acoustique et expérimentale. (3 crédits)

*Français N-314 (414)***Stylistique comparée et traduction**

Préalable: Français N-214 ou équivalent; crédits également admissibles pour les étudiants dont la langue maternelle est le français: 6 crédits en langue ou en littérature française. Etude des ressources stylistiques du français par rapport à celles de l'anglais. Le passage entre les deux langues est étudié en fonction des tendances fondamentales de chaque langue, tant du point de vue grammatical et lexical que du point de vue du contexte culturel. Au cours de l'année, les étudiants doivent faire des exercices de stylistique comparée, des traductions de textes, soit vers le français, soit vers l'anglais et des analyses de traductions littéraires. (6 crédits)

*Français N-321 (221)***Panorama de la littérature française**

Préalable: Français N-214 ou équivalent. Aucun préalable n'est exigé pour les étudiants qui ont fait leurs études en français. Ce cours s'adresse aux étudiants qui ont choisi la littérature française comme domaine de spécialisation principale ou secondaire. À côté d'un aperçu général de l'évolution de la littérature française des origines à nos jours, ce cours comprend une initiation aux techniques des études littéraires: principes de la versification, dissertation, explication de texte, etc... Les cours sont donnés en français et les travaux doivent être rédigés en français. (6 crédits)

NOTE: Les étudiants qui ont obtenu crédit pour le français 021 ou 221 ne recevront pas de crédits pour ce cours. Nous recommandons aux étudiants de suivre ce cours en même temps que le français N-241.

*Français N-331 (231)***Littérature et culture québécoises**

Préalable: Français N-211 ou 211 ou 011 ou équivalent. Ce cours offre un aperçu général de l'histoire - politique, économique, sociale et culturelle - du Québec, toile de fond de la production littéraire; il analyse les courants nouveaux nés du processus de décolonisation et leurs reflets dans l'expression littéraire. (6 crédits)

NOTE: Les étudiants qui ont obtenu crédit pour le français 031 ne recevront pas de crédits pour ce cours.

*Français N-381 (481)***Méthodologie de l'enseignement du français**

Préalable: Français N-214 ou équivalent, et une certaine expérience de l'enseignement du français, ou l'autorisation du département. Le premier semestre est consacré à l'analyse des problèmes théoriques de l'enseignement du français, langue seconde. Le mécanisme de l'interférence dans les domaines de la phonétique, de la morphologie et de la syntaxe est étudié ainsi que les questions d'ordre psychologique telles que la motivation et les "lois" de l'apprentissage. Le deuxième semestre est réservé à l'examen de diverses méthodes avec démonstrations, classes modèles, etc. (6 crédits)

*Français N-410 (410)***Composition avancée (II) et stylistique**

Préalable: Français N-310. Le cours se divise en trois parties: l'analyse stylistique proprement dite (définitions et procédés du style); une étude des grands genres littéraires et de leur évolution: des exercices commentés et critiqués de "creative writing". Selon leurs rapports, ces trois aspects du cours seront examinés parallèlement. (6 crédits)

*Français N-415 (415)***Traduction avancée**

Préalable: Français N-314 ou autorisation du département. Analyse approfondie de procédés stylistiques du français et de l'anglais. Etude des problèmes posés par les niveaux de langue et l'expression individuelle des auteurs. Travaux personnels et recherches en groupes. (6 crédits)

*Français N-417 (417)***Linguistique structurale du français contemporain**

Préalable: Français N-310 ou l'autorisation du département. Analyse descriptive de la structure linguistique du français contemporain. Etude des aspects phonémiques, morphosyntaxiques et lexicaux de la langue considérés comme un système. Applications théoriques et pratiques. (6 crédits)

*Français N-418 (418)***Phonétique expérimentale**

Préalable: Français N-313. Séminaire de recherche expérimentale. Initiation à l'utilisation des instruments de recherche. Etude détaillée de segments linguistiques du point de vue du timbre des voyelles, de l'articulation des consonnes et des faits prosodiques (accent, rythme, intonation). Etude expérimentale de problèmes relevant de la comparaison des systèmes phonétiques du français et de l'anglais. (3 crédits)

*Français N-420 (420)***Littérature française du moyen âge**

Préalable: Français N-321. Ce cours se propose de présenter à l'étudiant et de lui faire apprécier les richesses littéraires du moyen âge français, du Serment de Strasbourg aux poèmes de François Villon. (6 crédits)

*Français N-421 (421)***Littérature française de la Renaissance**

Préalable: Français N-321. Etude des conditions de la Renaissance française (temps et lieux; forces en jeu; transmissions et contacts). Trois écrivains sont approfondis en raison de leur

place et de leur rôle dans l'actualité de leur siècle et de leur importance spécifique: le conteur (Rabelais), le poète (Ronsard), le moraliste (Montaigne). La mythologie et le baroque sont étudiés comme signes de deux "renaissances" différentes, voire concurrentes. (6 crédits)

*Français N-422 (422)***Le XVII^{ème} siècle**

Préalable: Français N-321. Cette étude du XVII^{ème} siècle comporte une introduction historique et l'analyse des idées héritées des siècles précédents et de celles qui apparaissent et se développent au cours du XVII^{ème} siècle. Les différents genres littéraires sont ensuite envisagés successivement: le théâtre, le roman, la poésie lyrique, les essais. (6 crédits)

*Français N-423 (423)***Littérature française du XVIII^{ème} siècle**

Préalable: Français N-321. Après une introduction détaillée sur les modifications que subit la vie littéraire après le "Siècle de Louis XIV" ce cours tend d'abord à préciser les concepts-clefs du XVIII^{ème} siècle pour établir les supports historiques et philosophiques de la période. Les écrivains importants, de Prévost à Rousseau, sont ensuite étudiés dans l'ordre chronologique. (6 crédits)

*Français N-424 (424)***La littérature du XX^{ème} siècle I**

Préalable: Français N-321. Ce cours débute par une analyse sommaire des facteurs historiques, économiques, sociaux et artistiques qui ont caractérisé la "Belle Epoque"; distingue, pendant cette période, la littérature en vogue de celle qui préparait le renouveau littéraire de l'entre-deux-guerres; analyse particulièrement l'oeuvre de Péguy, Claudel, Proust, Gide et Apollinaire. Après un bref aperçu sur la guerre de 1914-1918 et ses conséquences, il se termine par une étude des mouvements dadaïste et surréaliste. (6 crédits)

*Français N-426 (426)***La littérature du XX^{ème} siècle II**

Préalable: Français N-321. Après une brève analyse des conséquences de la première guerre mondiale sur le plan social, politique et artistique, sont étudiées par genre (roman et théâtre) les oeuvres des principaux écrivains français, de 1920 à nos jours. Sont particulièrement étudiés Bernanos, Malraux, St-Exupéry, Camus, Anouilh, Montherlant, Sartre, Giraudoux, Ionesco et Robbe-Grillet. (6 crédits)

*Français N-427 (427)***Le Romantisme**

Préalable: Français N-321. Le cours étudie le mouvement romantique européen et son expression française. Il aborde les questions suivantes: Pourquoi le mouvement apparaît-il en France une génération plus tard qu'en Allemagne et en Angleterre? La révolution française est-elle classique ou romantique? Les Romantiques sont-ils conservateurs ou révolutionnaires? Les caractères, thèmes, limites et réussites propres au Romantisme français sont étudiés dans les oeuvres de Chateaubriand, Lamartine, Vigny, Hugo et Musset. (3 crédits)

*Français N-428 (428)***Le roman à l'époque romantique**

Préalable: Français N-321. On étudiera dans trois romans écrits autour de 1830 l'invention et le développement des techniques réalistes propres à exposer les problèmes éthiques, politiques et sociaux d'une société en train de devenir la société industrielle contemporaine. (3 crédits)

*Français, N-429 (429)***La littérature française de 1857 à 1914**

Préalable: Français N-321. L'éclatement du romantisme; le triomphe de la philosophie positive; le Réalisme; la revanche de l'esthétisme, de l'irrationnel: l'art pour l'art, le Symbolisme. La poésie: Baudelaire, le Symbolisme. Le roman: Flaubert, Zola. (6 crédits)

*Français N-431 (431)***Le roman québécois contemporain**

Préalable: Français N-331. Etude des romanciers les plus importants du Québec: Aquin, Bessette, Blais, Ducharme, Hébert, Langevin, Roy; leur vision du monde; leur manière de se rattacher aux courants littéraires de notre époque; leurs conceptions littéraires. (6 crédits)

*Français N-432 (432)***La poésie québécoise contemporaine**

Préalable: Français N-331. Etude des poètes les plus importants du Québec. Chamberland, Duguay, Hébert, Giguère, Godin, Grandbois, Lasnier, Miron, Nelligan, Saint-Denis Garneau; leurs thèmes; leur vision du monde. (6 crédits)

*Français N-461 (461)***Le cinéma français**

Préalable: Français N-211 ou 211 ou 011 ou équivalent ou l'autorisation du département. Aucun préalable n'est exigé des étudiants qui ont fait leurs études secondaires en français. Ce cours, abondamment illustré de films ou d'extraits de films, retrace en tout ou en partie, l'histoire du septième art dans ses manifestations les plus originales et les plus caractéristiques. (6 crédits)

NOTE: Avec l'autorisation du département, un étudiant peut suivre le cours deux fois et obtenir 6 autres crédits à condition que le contenu du cours soit différent. L'étudiant qui prend N-461 pour la seconde fois s'inscrit en N-463.

*Français N-462 (462)***Le théâtre français**

Préalable: Français N-321 ou Français N-214 et Français N-241 ou l'autorisation du département. Ce cours étudie l'histoire du théâtre en France depuis le drame liturgique du moyen âge jusqu'à l'anti-théâtre du XX^{ème} siècle; textes et aspects scéniques ne sont pas dissociés. (6 crédits)

*Français N-463 (463)***Le cinéma français**

Préalable: L'autorisation du département. Tout étudiant s'inscrivant pour la seconde fois au cours de cinéma N-461 obtient les crédits N-463. (6 crédits)

*Français N-465 (465)***Théâtre québécois**

Préalable: Français N-331. Etude du théâtre québécois à partir de 1945. Analyse des pièces les plus importantes pour en dégager les lignes de force et établir leurs relations avec le contexte social du Québec contemporain. (3 crédits)

*Français N-491 (451)***Etude avancée d'un sujet particulier**

Préalable: Français N-321, douze crédits en littérature française dont six au moins au niveau '400' ou l'autorisation du département. Ce cours n'est ouvert qu'aux étudiants des programmes *major* ou *honours*. Il offre l'occasion d'approfondir l'étude d'un sujet à déterminer par l'étudiant en accord avec son conseiller et/ou un professeur du département. Chaque étudiant exécute des travaux individuels sous le contrôle du professeur spécialiste de la matière. (6 crédits)

NOTE: Avec l'autorisation du département, un étudiant peut suivre le cours deux fois et obtenir 6 autres crédits à condition que le sujet en soit différent. L'étudiant qui prend N-491 pour la deuxième fois s'inscrira en N-492.

Français N-492

Etude avancée d'un sujet particulier

Préalable: Français N-491 et l'autorisation du département. Tout étudiant s'inscrivant pour la seconde fois au cours N-491 obtient les crédits N-492. (6 crédits)

Mathematics

NOTE: For additional courses in Mathematics please consult the Faculty of Science section, page 218 of this calendar.

NOTE: Prerequisites, where listed, are given CEGEP numbers. The equivalent SGWU collegial number is found in the table on page 196 of this calendar.

Mathematics N-200

Fundamental Concepts of Algebra

This is a course designed for mature students who need a modern background for Mathematics 101. Sets, axiomatics, algebraic techniques, inequalities, analytic geometry of lines, circles, parabolas. (3 credits)

Mathematics N-201

Elementary Functions

Sets. Field of real numbers. Inequalities. Functions and graphs. Trigonometric, exponential and logarithmic functions. (3 credits)

NOTE: Any student who has passed (a) Mathematics 001 or the equivalent or (b) Mathematics 223 or the equivalent may not take this course for credits.

Mathematics N-202

College Algebra

Prerequisite: Mathematics N-201 or equivalent previously or concurrently. Proofs and Implications. The natural numbers and the integers. Mathematical induction. Divisibility, the Euclidean Algorithm, primes, the Fundamental Theorem of Arithmetic. Sequences and progressions. Complex numbers, polynomials, the Fundamental Theorem of Algebra. Combinatorial Mathematics, the Binomial Theorem. Systems of equations determinants, Cramers' Rule. (3 credits)

NOTE: Any student who has passed (a) CEGEP Mathematics 101 or the equivalent or (b) Mathematics 213 or the equivalent may not take this course for credits.

Mathematics N-203

Differential and Integral Calculus I

Prerequisite: Mathematics N-201 or equivalent. Functional notation. Limits and continuity. Differentiation of polynomials. The power, product, quotient and chain rules. Implicit differentiation. Higher derivatives. Mean Value Theorem. Rolles Theorem. Maxima and Minima. Applications; tangents to plane curves, related rates. The differential use in finding approximations. Indefinite and definite integrals areas and volumes. (3 credits)

NOTE: Any student who has passed (a) CEGEP Mathematics 103 or the equivalent or (b) Mathematics 451 or the equivalent may not take this course for credits.

Mathematics N-204

Vector Analysis and Analytical Geometry

Prerequisite: Mathematics N-201 or equivalent. Inner and cross products of vectors. Algebraic and vector equations of curves in the plane and in space. Elementary study of surfaces in space. Curves and surfaces in parametric form. Polar, spherical and cylindrical coordinates. (3 credits)

NOTE: Any student who has passed (a) CEGEP Mathematics 105 or the equivalent or (b) Mathematics 431 or the equivalent may not take this course for credits.

Mathematics N-205

Differential and Integral Calculus II

Prerequisite: Mathematics N-203. Differentiation and integration of trigonometric functions. Derivatives of inverse trigonometric functions, logarithmic functions and exponential functions. Methods of integration by parts, by substitution, by separation into partial fractions. Improper integrals, L'Hopitals' Theorem. Series: convergency tests. Maclaurin and Taylor Theorems. (3 credits)

NOTE: Any student who passes (a) CEGEP Mathematics 203 or the equivalent or (b) Mathematics 451 or the equivalent may not take this course for credits.

Mathematics N-206**Linear Algebra for the Social Sciences**

Prerequisite: Mathematics N-202. Operations on Matrices. Determinants, Cramers' Rule. Systems, rank. The inverse matrix. The Gauss Jordan Method, Mappings, matrix transformation, Linear Transformations, Characteristic Values, vectors, quadratic forms. (3 credits)

NOTE: Any student who has passed (a) Mathematics 006 or the equivalent or (b) Mathematics 411 or N-281 or the equivalent may not take this course for credits.

Mathematics N-207**Statistics for the Social Sciences**

Prerequisite: Mathematics N-201 or equivalent, or permission of Departments of Mathematics or Economics. Elementary probability, permutations and combinations, binomial and normal distribution. Analysis and organization of statistical data. Tests of hypotheses. Confidence limits. Introduction into linear regression and correlation. (3 credits)

NOTE: Any student who has passed (a) Mathematics 007 or the equivalent or (b) Mathematics N-241 or the equivalent may not take this course for credits.

Mathematics N-208**Fundamental Mathematics I**

Prerequisite: Mathematics 101 or equivalent. This course is intended primarily for pre-Commerce students. Progressions, compound interest, annuities; permutations,

combinations and binomial theorem; systems of linear equations, inequalities, linear programming; matrices. (3 credits)

NOTE: Students with credits for Mathematics N-202 or equivalent may not take this course for credits.

Mathematics N-209**Fundamental Mathematics II**

Prerequisite: Mathematics 101 or equivalent. This course is intended primarily for pre-Commerce students. Limits, differentiation of rational, exponential and logarithmic functions, theory of maxima and minima, integration. (3 credits)

NOTE: Students with credits for N-203 or equivalent may not take this course for credits.

The following courses are available only to practicing teachers.

Mathematics N-300 (6 credits)

Mathematics N-301 (6 credits)

Mathematics N-401 (6 credits)

Mathematics N-404 (6 credits)

Descriptions of the above courses are listed in the Faculty of Science section, page 218 of this calendar.

Philosophy

Associate Professor and Chairman of the Department
Vladimir Zeman

Professors

Stanley G. French
Paul Germain
Dallas Laskey

Associate Professors

M. Mobin Ahmad
Roger B. Angel

Assistant Professors

Christine Garside
Jack Ornstein

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Philosophy: major

The following courses, in an approved sequence, constitute a major:

First Year: Philosophy N-210 or N-211.

6 additional credits chosen from Philosophy N-221, N-231, N-273.

Second Year: One of Philosophy N-301, N-401, N-403

12 credits in Philosophy, six of which must be at the '300' or '400' level.

Third Year: One of Philosophy N-369, N-405, N-409.

6 credits in Philosophy at the '300' or '400' level.

Philosophy: joint major component

The following courses constitute the joint major component:

12 credits chosen from Philosophy N-221 or N-321, N-369, N-405.

18 credits chosen from Philosophy N-301, N-321 N-369, N-396*, N-401, N-403, N-405, N-407, N-421, N-431, N-493, N-495.

Philosophy: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

First Year: Philosophy N-211.

6 credits in Philosophy N-210 (or collegial equivalent), N-221, N-231, N-273.

Second Year: Philosophy N-221 or N-321, N-380.

6 credits chosen from Philosophy N-301, N-401, N-403.

6 additional credits in Philosophy.

Third Year: Philosophy N-405, N-369 or N-421.

6 credits chosen from Philosophy N-407, N-409, N-431.

6 additional credits in Philosophy at the '300' or '400' level.

It is strongly recommended that an honours student in Philosophy planning to do graduate work acquire a good reading knowledge of a modern language related to his field of interest.

Political Philosophy: major

A. Political Science N-311, N-320, N-413; Philosophy N-210 or N-211.

B. 24 credits chosen from: Philosophy N-369, N-372*, N-374*, N-376*, N-401, N-407. Political Science N-415; Sociology N-430.

Philosophy and Education: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

Psychology N-211.

6 credits chosen from Psychology N-212*, N-213*, N-302*, N-303*, N-434.

Education N-421 or N-451.

Education N-430.

Education N-441 (prerequisite: 6 credits at the '200' level in History).

Education N-480 (must be taken concurrently with Philosophy N-480).

Philosophy N-210 or N-211 or the Collegial or other equivalent.

Philosophy N-380.

Philosophy N-221 or N-321 or N-369.

6 credits chosen from Philosophy N-231, N-271, N-273, N-301, N-321, N-369, N-372*, N-374*, N-376*, N-378*, N-396*, N-401, N-403, N-405, N-407, N-431, N-493.

Philosophy N-369 or N-405.

Philosophy N-480 (must be taken concurrently with Education N-480).

Philosophy and English: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

18 credits chosen from English N-333, N-334, N-335, N-336, N-337, N-374, N-375, N-487.

18 credits chosen from English N-231*, N-232*, N-244, N-344, N-348, N-351, N-353, N-356, N-363, N-367, N-376, N-430, N-449*, N-456*, N-459, N-460, N-466, N-476.

Philosophy N-210 or N-211 or the Collegial or other equivalent.

Philosophy N-380.

Philosophy N-221 or N-321 or N-369.

6 credits chosen from Philosophy N-231, N-271, N-273, N-301, N-361, N-369, N-372*, N-374*, N-376*, N-378*.

Philosophy N-369 or N-405.

6 credits chosen from Philosophy N-321, N-365, N-396*, N-401, N-403, N-405, N-407, N-431, N-493; Interdisciplinary Studies N-241*, N-242*.

Philosophy and History: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

First Year: History N-210, Philosophy N-211.

Second Year: History N-390, 6 credits chosen from History N-333, N-335, N-336.

Philosophy N-380, 6 credits chosen from Philosophy N-301, N-401, N-403.

Third Year: History N-490 or Philosophy N-490. 6 credits chosen from History N-333, N-335, N-336.

6 credits in History at the '400' level chosen in consultation with the departmental honours representative.

Philosophy N-405 or N-407.

6 additional credits in Philosophy at the '300' or '400' level chosen in consultation with the departmental honours representative.

Philosophy and Religion: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

12 credits chosen from Religion N-211, N-213, N-301*, N-302*.

Religion N-443.

Religion N-461 or Religion N-363.

Religion N-444.

6 credits chosen from Religion N-311, N-312, N-313, N-326*, N-327*, N-328*, N-491, N-492.

Philosophy N-210 or N-211 or the Collegial or other equivalent.

Philosophy N-380.

Philosophy N-221 or N-321 or N-369.

6 credits chosen from Philosophy N-231, N-271, N-273, N-301, N-361, N-365, N-369, N-372*, N-374*, N-376*, N-378*.

Philosophy N-369 or N-405.

6 credits chosen from Philosophy N-321, N-365, N-396*, N-401, N-403, N-405, N-407, N-431, N-493.

Philosophy & Sociology: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

Pattern A (Epistemology and Methodology)

Sociology N-210 or the Collegial or other equivalent.

Sociology N-241*, N-411, N-481.

6 credits chosen from Sociology N-420, N-430, N-431.

Sociology N-422 or N-496.

6 credits chosen from Philosophy N-210, N-211, N-221 or the Collegial or other equivalent.

Philosophy N-380.

Philosophy N-221 or N-321.

Philosophy N-369 or N-405.

3 credits chosen from Philosophy N-372*, N-374*, N-376*.

6 credits chosen from Philosophy N-321, N-369, N-396*, N-401, N-405, N-421, N-493.

Pattern B (Man in Society)

Sociology N-210 or the Collegial or other equivalent.

Anthropology N-211 or the Collegial or other equivalent.

Sociology N-420, N-481.

6 credits chosen from Sociology N-421, N-422, Anthropology N-423.

6 credits chosen from Sociology N-442, N-443, N-444*, N-445*, N-446, N-447, N-454.

Philosophy N-210 or N-211.

Philosophy N-380.

6 credits chosen from Philosophy N-221, N-321, N-369.

6 credits chosen from Philosophy N-372*, N-374*, N-376*, N-378*.

Any 12 additional credits in Philosophy.

There are two introductory courses in Philosophy. Philosophy N-210 deals systematically with some specific philosophical problems, while Philosophy N-211 considers in depth six major philosophies.

Philosophy N-210 (211)

Problems of Philosophy

A survey of selected philosophical problems in which both contemporary and traditional approaches are critically examined. Specimen topics include: philosophical method, the existence of God, the mind-body problem, freedom and determinism, moral and political obligation. (6 credits)

NOTE: Students who have credits for Philosophy 011 may not take this course for credits.

Philosophy N-211 (212)

Philosophical Classics

A critical discussion of selected philosophical classics. Readings will be chosen from Plato, Aristotle, Descartes, Hume, Kant and one recent or contemporary philosopher. (6 credits)

NOTE: Students who have credits for Philosophy 012 may not take this course for credits.

Philosophy N-221 (253)

Introduction to Logic and Philosophy of Science

This course is designed to provide familiarity with the basic problems of logic and to develop necessary technical skills. In the second part of the course, some important concepts in the philosophy of science will be discussed. (6 credits)

NOTE: Students who have credits for Philosophy 053 may not take this course for credits.

Philosophy N-231 (241)

Problems of Morals

An introduction to theoretical and applied ethics. In this course, attention will be given to the history of ethical thought and to discussion of

contemporary problems. (6 credits)

NOTE: Students who have credits for Philosophy 041 may not take this course for credits.

Philosophy N-271 (271)

Contemporary Philosophy

A critical study of selected 20th century philosophers. Movements and figures discussed vary from year to year. Specimen topics include: Pragmatism, Positivism, Existentialism, Linguistic Analysis: Russell, Moore, Whitehead, Dewey, Wittgenstein. (6 credits)

NOTE: Students who have credits for Philosophy 071 may not take this course for credits.

Philosophy N-273 (273)

Existentialism

A course designed to acquaint the student with the fundamentals of the existentialist movement as a philosophical perspective. Among philosophers considered will be Kierkegaard, Nietzsche, Heidegger, Sartre, Merleau-Ponty, Jaspers, Marcel and Camus. (6 credits)

NOTE: Students who have credits for Philosophy 073 may not take this course for credits.

Philosophy N-301 (422)

Greek Philosophy

A survey of the principal developments from the Presocratics (600 B.C.) to Plotinus (250 A.D.). Primary emphasis will be placed on the critical reading of selected original sources. The majority of time will be devoted to Plato and Aristotle. (6 credits)

Philosophy N-321 (454)

Modern Logic

An introduction to modern logic, its techniques and applications. Coverage of sentential logic, first order predicate logic, naive set theory, relations, functions and an introduction to set theoretical foundations of the axiomatic method. (6 credits)

Philosophy N-361 (261)

Philosophical Ideas in Literature

An inquiry into the philosophy of literature, with detailed study of works exemplifying philosophy in literature. Authors from East and West will be included, and analysis of alternative theories of human nature will be central to the course. (6 credits)

NOTE: Students who have credits for Philosophy 061 may not take this course for credits.

Philosophy N-365 (465)

Studies in Russian Philosophy

Prerequisite: Six credits in Philosophy or permission of the instructor. Study of the main topics in the development of Russian philosophy. Topics to be discussed include: Nihilism and Anarchism, Tolstoy's Philosophy of History, Dostoyevsky's idea of evil, Marxism. Lectures and seminars. (6 credits)

Philosophy N-368 (468)

Philosophical Psychology

A critical examination of the explanation of human behaviour and the self in the light of new developments in philosophy and psychology. Detailed studies of selected problems such as motives, intention, the concept of person, choice, reason, freedom, purpose and action. (3 credits)

Philosophy N-369 (413)

Contemporary Analytic Philosophy

Prerequisite: Twelve credits in philosophy or permission of the instructor. A seminar devoted to the investigation of selected philosophical problems as they arise in the writings of such philosophers as Moore, Russell, Ayer, Carnap, Quine, Wittgenstein, Ryle, Wisdom, Austin and others. (6 credits)

Philosophy N-372 (431)

Contemporary Political Thought

Critical analysis of contemporary political-philosophical concepts such as tolerance, violence, séparatisme, racism and the nationalism of visible minorities. (3 credits)

Philosophy N-374 (432)

Philosophy of Law

Critical analysis of current and classical legal philosophy. (3 credits)

Philosophy N-376 (435)

Philosophy of the Social Sciences

Philosophical examination of the structure and methodology of the social sciences. Special attention to problems of functionalism, teleological explanation and the testing of social theories. (3 credits)

Philosophy N-378 (436)

Aesthetics

Conceptual problems relating to the production and appreciation of the fine arts. Specimen topics include the nature of the work of art and of artistic expression, artistic criticism, fiction, metaphor, appreciation and the logic of value judgments. (3 credits)

Philosophy N-380 (401)

Honours Seminar in Epistemology and Metaphysics

Intensive seminar and tutorial study of major contemporary issues in the theory of knowledge and metaphysics, designed particularly for honours students in any department. (6 credits)

Philosophy N-396 (471)

The Study of a Given Thinker

Prerequisite: One course in Philosophy or permission of the instructor. A seminar course devoted to the study of a major philosopher. Special attention is given to the cultural background, the personal development and the leading theories of the thinker, as well as to critical evaluations of his work. (3 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time under N-398.

Philosophy N-398 (472)

The Study of a Given Thinker

Prerequisite: Six credits in Philosophy or permission of the instructor. A student repeating N-396 for a second time registers under Philosophy N-398. (3 credits)

NOTE: Students who have credits for Philosophy N-496 may not take this course for credits.

Philosophy N-401 (421)

British Empiricism

Prerequisite: Six credits in Philosophy or permission of the instructor. This course studies intensively the works of at least two of Locke, Berkeley and Hume. (3 credits)

Philosophy N-403 (423)

Continental Rationalism

Prerequisite: Six credits in Philosophy or permission of the instructor. An intensive study of at least two of Descartes, Spinoza and Leibniz. (6 credits)

Philosophy N-405 (424)

Kant

Prerequisites: Twelve credits in Philosophy or permission of the instructor. Critical and intensive seminar study of the philosophy of Kant. (6 credits)

*Philosophy N-407 (407)***Nineteenth Century Philosophy**

Prerequisite: Six credits in Philosophy or permission of the instructor. An examination of some of the main currents of post-Kantian thought in the 19th century, with special emphasis on Hegel. Specimen topics include: Schopenhauer, Marx, Kierkegaard, Nietzsche, J.S. Mill, Bradley, existentialism, phenomenology, positivism, idealism, utilitarianism. The course will not attempt to cover all of these figures and movements in any one year. (6 credits)

*Philosophy N-409 (409)***Phenomenology**

Prerequisites: Twelve credits in Philosophy or permission of the instructor. Origins and development of phenomenology from Brentano through the different stages of Husserl's writings. Post-Husserlian modifications by Scheler, Ingarden, Heidegger and Merleau-Ponty will be studied, as well as applications of method in the specific areas of aesthetics, ethics, religion and the social sciences. (6 credits)

*Philosophy N-421 (452)***The Philosophy of Science**

An examination of problems pertaining to the structure of scientific theories and the logic of scientific reasoning. The nature of scientific explanation, the relationship between theory and experiment; the status of theories; geometry and physics; causality; inductive logic and the interpretation of scientific probability. (6 credits)

*Philosophy N-431 (441)***Recent Ethical Theory**

Prerequisite: Six credits in Philosophy or permission of the instructor. A critical analysis of leading contemporary ethical theories from Moore to the present. Special attention is given to the naturalistic fallacy, the reducibility of normative statements, ethical reasoning and the relation of ethics to psychology and sociology. (6 credits)

*Philosophy N-480 (490)***Honours Seminar in Philosophy and Education**

This course must be taken concurrently with Education N-480. (6 credits)

*Philosophy N-493 (491)***Special Topics in Philosophy**

Prerequisite: Six credits in Philosophy or permission of the instructor. Special topics accommodating the interests of the instructor and students, selected from various areas in philosophy, e.g. value theory, philosophy of mind, philosophy of mathematics, philosophical ideas in literature. (6 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits provided that a different subject is dealt with the second time. He will register the second time under Philosophy N-495.

*Philosophy N-495 (492)***Special Topics in Philosophy**

Prerequisites: Twelve credits in Philosophy or permission of the instructor. A student repeating Philosophy N-493 a second time registers for credits under Philosophy N-495. (6 credits)

Religion

Professor and Chairman of the Department
Charles Davis

Associate Professors

Michel Despland
Sheila McDonough
David Miller

Jean Ouellette
John Rossner

Assistant Professors

Frederick B. Bird
Robert G. Goldenberg
Stephen Poppel

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Religion: major

The following courses, in an approved sequence, constitute a major:

A. 6 credits from Religion N-211, N-213, N-311, N-312, N-313.

B. 6 credits from Religion N-301, N-302, N-326, N-327, N-328, N-329, N-361, N-362, N-363.

C. 30 additional credits in Religion at the '300' or '400' level.

Religion: joint major component

The following courses constitute the joint major component:

30 credits in Religion to be determined in consultation with the Religion Major Advisor.

Religion: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

A. 12 credits from Religion N-211, N-213, N-311, N-312, N-313.

B. 12 credits from Religion N-301, N-302, N-326, N-327, N-328, N-329, N-341, N-362.

C. 24 additional credits in Religion at the '300' or '400' level, 12 of which must be at the '400' level.

D. 12 additional credits to be taken either in Religion or in a related discipline following approval by the departmental honours representative.

It is strongly recommended that an honours student in Religion planning to do graduate work acquire a good reading knowledge of French, German and other languages that might be required for his field.

Religion and English: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

Pattern A (emphasis on the historical)

A. English N-333, N-375 or N-376.
12 credits chosen from English N-333, N-334, N-335, N-336, N-337, N-348, N-374 or N-376.
6 credits chosen from English N-430, N-487, N-492.

B. Religion N-301*, N-352*.
6 credits chosen from Religion N-211, N-213, N-363.
Religion N-461.
6 credits chosen from Religion N-443, N-491.
6 credits chosen from Religion N-311, N-312, N-313, N-326*, N-327*, N-328*, N-465.

Pattern B (emphasis on the contemporary)

A. English N-333.
12 credits chosen from English N-244, N-375, N-335, N-336, N-344, N-348.
English N-337 or N-356.
6 credits chosen from English N-351, N-353, N-430, N-456, N-487, N-492.

B. 24 credits chosen from Religion N-213, N-241, N-351*, N-352*, N-363, N-443.
12 credits chosen from Religion N-311, N-312, N-313, N-326*, N-327*, N-328*, N-491.

It is strongly recommended that an honours student in Religion and English planning to do graduate work acquire a good reading knowledge of French, German, Greek, Hebrew or Latin.

Religion and History: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

Pattern I (Asia)

A. History N-210, N-261, N-361, N-362, N-390.

B. Religion N-213, N-311, N-312, N-313.

C. Sociology N-210, N-424.

Any 6 credits at the '400' level in History or Religion may be substituted for any specified course with the approval of the honours representative. Students who are interested in comparative aspects of Islamic development are reminded that History N-365 is available.

Pattern II (Europe)

A. History N-210, N-390.

B. Religion N-211 or N-213.

C. 42 credits chosen from:
History N-331, N-332, N-333, N-336;
Religion N-262, N-443, N-461;
Sociology N-210, N-424.

NOTE: Students electing to take Sociology N-210 in the honours programme must take Sociology N-424 as well.

Religion and Philosophy: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

12 credits chosen from Religion N-211, N-213, N-301*, N-302*.

Religion N-443.

Religion N-461 or Religion N-363.

Religion N-444.

6 credits chosen from Religion N-311, N-312, N-313, N-326*, N-327*, N-328*, N-491, N-492.

Philosophy N-210 or N-211 or the Collegial or other equivalent.

Philosophy N-380.

Philosophy N-221 or N-321 or N-369.

6 credits chosen from Philosophy N-231, N-271, N-273, N-301, N-361, N-363, N-365, N-369, N-372*, N-374*, N-376*, N-378*.

Philosophy N-369 or N-405.

6 credits chosen from Philosophy N-321, N-365, N-396*, N-401, N-403, N-405, N-407, N-431, N-493.

Religion and Sociology: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

A. Anthropology N-211, Religion N-213, Sociology N-210.

6 credits chosen from Religion N-301*, N-302, N-363.

B. 12 credits chosen from Religion N-311, N-312, N-313, N-326*, N-327*, N-328*, N-461, 12 credits chosen from: Religion N-491; Sociology N-430 or N-431; N-481.

6 credits chosen from: Anthropology N-423; Sociology N-424, N-443, N-446, N-494.

6 additional credits in Sociology chosen in consultation with the student's honours advisor.

It is strongly recommended that an honours student in Religion and Sociology planning to do graduate work acquire a good reading knowledge of French, German, Greek, Hebrew or Latin.

Judaic Studies: major

The following courses, in an approved sequence, constitute a major:

A. Religion N-211 or N-213.

B. Religion N-301, N-326, N-327, N-328, N-329, N-497, N-498.

C. Hebrew N-210 or N-215 or the equivalent.

D. Religion N-361 or N-362 or N-313.

E. At least 9 additional credits at the '300' or '400' level.

Judaic Studies: joint major component

The following courses constitute the joint major component:

Hebrew N-210 or equivalent; Religion N-301*, N-302*, N-326*, N-327*, N-328*, N-329*.

Religion N-497* and N-498* or 6 additional credits at the '400' level chosen in consultation with the major advisor.

Religion N-211 (211)**Understanding Religion**

A systematic and topical introduction to the study of religion. The purpose of the course is to enable the student to articulate and investigate questions about the meaning and nature of religion. Problems discussed will include the elements of religious experience, forms of religious expression and interpretation, religious communities and practices and the questions raised by the contemporary interfaith dialogue. Materials will be taken from a variety of religious traditions. (6 credits)

Religion N-213 (213)**Major Religious Traditions of the World**

A historical and comparative overview of the major religious traditions of the world: Judaism, Christianity, Islam, Hinduism, Buddhism and Chinese religions. The course will include some consideration of the new religions in North America. (6 credits)

Religion N-301 (251)**Biblical Studies I: The Hebrew Bible**

An introduction to the methods and results of Biblical scholarship with regard to the history, culture and religion of Ancient Israel. Particular attention is given to the major religious affirmations and theological concepts of the

Hebrew Bible which have become central in the subsequent development of Judaism. (3 credits)

NOTE: Students who have credits for Religion 051, N-251 or N-351 may not take this course for credits.

Religion N-302 (252)

Biblical Studies II: The New Testament

An introduction to the methods and results of contemporary New Testament scholarship; a critical survey of New Testament literature considering historical setting, history of text, religious and cultural significance. Attention is given to the central issues and concepts portrayed in the Synoptic, Johannine and Pauline writings and their importance in the subsequent development of the Western religious tradition. (3 credits)

NOTE: Students who have credits for Religion 052, N-252 or N-352 may not take this course for credits.

Religion N-311 (411)

The Religions of India, Ceylon, Southeast Asia

An historical study of the major religious traditions native to the Indian sub-continent, Ceylon and Southeast Asia. Although the course will concentrate upon the development of Hindu and Buddhist religious thought and institutions, consideration will be given to the influence of Jainism, Islam and Christianity upon Hinduism and Theravada Buddhism. The course will end with an analysis of the contemporary religious situation in India and Burma. (6 credits)

NOTE: Students who have credits for Religion N-411 may not take this course for credits.

Religion N-312 (412)

The Religions of China and Japan

Prerequisite: Second year standing. An historical study of the religious traditions of pre-modern China, Tibet and Japan. After a brief introduction to the origin of Buddhism in India, the course will focus upon the development of religious thought and institutions in Mahayana Buddhism, Taoism, Confucianism and Shinto. The course will end with an analysis of the contemporary religious situations in China and Japan. (6 credits)

NOTE: Students who have credits for Religion N-412 may not take this course for credits.

Religion N-313 (413)

Islam

A study of the rise and development of Islamic religion and culture, with special attention to mysticism and to modernism. (6 credits)

NOTE: Students who have credits for Religion N-413 may not take this course for credits.

Religion N-326 (426)

Talmudic Judaism

The concepts and institutions of classical or 'normative' Judaism, in the setting of the Hellenistic-Roman world. A conceptual approach to law, ethics, philosophy and culture of post-Biblical Judaism. Consideration will be given to sectarianism and sectarian movements (Samaritans, Dead Sea Scrolls) and their relationship to the major Jewish 'Schools' (Pharisees, Sadducees, Essenes) and to the early Christian Church. (3 credits)

NOTE: Students who have credits for Religion N-426 may not take this course for credits.

Religion N-327 (427)

Medieval Jewish Thought and Institutions

Topics in the intellectual, religious, and social history of selected Jewish communities during the Middle Ages. Both internal Jewish developments and changing Jewish relations with their non-Jewish neighbours will be considered. (3 credits)

NOTE: Students who have credits for Religion N-427 may not take this course for credits.

Religion N-328 (428)

Modern Jewish Thought and Institutions

An investigation of the times and thought-forms of Jewish thinkers since 1789. Topics will include: the nature of revelation, the Jew in society, 'Israel' in history and philosophy, Zionism and 'the Jewish question'. Some major Jewish thinkers - e.g. Buber, Rosenzweig - and movements - the Haskalah, Zionism, Hasidism and the Reform movement in Germany - will be analyzed. (3 credits)

NOTE: Students who have credits for Religion N-428 may not take this course for credits.

Religion N-329 (329)

Sefardic Judaism

A critical analysis of the religious traditions peculiar to Sefardic Jews. Particular attention will be given to North African Judaism. (3 credits)

Religion N-331 (331)

Contemporary Ethical Issues: Personal

This course will identify and analyse ethical issues arising at the personal level today. Issues will be discussed in the context of the interrelationship between moral values and religious convictions. Topics will vary from year to year, but some examples of areas that raise ethical and religious questions for personal existence are: affluence, alienation, work, leisure, aging, drugs. (3 credits)

*Religion N-332 (132, 332)***Contemporary Ethical Issues: Societal**

This course will identify and analyse ethical issues arising from social groups today. In discussing the issues, account will be taken of the bearing of religious institutions and traditions upon social attitudes and problems. Topics will vary from year to year, but examples of problem areas that have evoked ethical and religious debate are: economic and social inequality, race relations, violence and war, hunger and poverty, population growth. (3 credits)

*Religion N-333 (333)***Women and Religion I**

An examination of the roles and images of women in the history of religions. Topics might include: the development of patriarchal religion, religion and sexuality, women and myth, the roles of women in different religious communities. This course will include an integrated sequence of lectures (minimum three weeks) by an anthropologist on matriarchal and patriarchal societies. (3 credits)

*Religion N-334 (334)***Women and Religion II**

An examination of the religious and ethical questions raised by contemporary discussions of women's experience. Topics might include: the recent beginnings of a feminist theology, the feminist critique of organized religion and society, the effects of male perspective upon philosophy and theology and women in the ministry. (3 credits)

*Religion N-341 (341)***Religion and Literature**

This course deals with the questions raised for the study of religion by works of literature. An account will be given of the recent development of interdisciplinary studies in religion and literature and of the problems of method that have arisen. The relation between the interpretation of religious language, with its use of myth, parable, symbol and metaphor, and literary criticism will be explored. The religious implications, direct and indirect, of selected literary works will be discussed. (6 credits)

*Religion N-361 (441)***Studies in the History of Christian Thought**

An introduction to the classics of Christian thought from the Fathers to the modern period. Authors studied at length may vary from year to year, but in any case students will acquire a basic knowledge of Augustine, Aquinas, Luther and Calvin. (6 credits)

*Religion N-362 (442)***Questions from the Christian Tradition**

A study of some of the major religious questions and controversies in the history of the Christian West. The questions chosen will vary, but examples are: grace and free will, faith and reason, history and eschatology, church and state, contemplation and action.

*Religion N-363 (463)***Religion in Canada**

The historical development of the major religious traditions in Canada, their influence on the social, political and cultural areas of Canadian life and their contemporary significance. Attention will also focus on the inter-action of Catholic, Protestant, Jewish, Indian and Eskimo groups. (6 credits)

NOTE: Students who have credits for Religion 261 or 061 or N-463 may not take this course for credits.

*Religion N-364 (447)***The Origin of Myth, Ritual, Magic and Reason in Western Culture**

A study of religion, myth, ritual, magic, science and technology in the ancient sacral-societies of Egypt and Mesopotamia. The emergence of religious and philosophical thought in classical Greece and the development of the Hebraic and early Christian forms of Monotheism. Toward the end of the course these themes will be related to subsequent developments in Western culture. (6 credits)

*Religion N-435 (435)***Comparative Religious Ethics: West & East**

This course will identify the ways in which different religious and ideological traditions from West and East consider and deal with ethical issues. Examples of such traditions are Navaho, Jewish, Christian, Islamic, Hindu, Buddhist, Confucian, Humanist, Communist. The ethical values and ideals found in these traditions and their influence upon individual life patterns and social organization will be considered. (6 credits)

*Religion N-443 (443)***Modern Religious and Atheistic Thought**

A historical and critical review of the conflicting philosophical interpretations of religion that have arisen in the West since the Enlightenment. Special attention will be paid to problems about the nature of meaning of religious experience currently debated between religious and secularist thinkers. (6 credits)

*Religion N-465 (465)***Classical and Contemporary Images of Man**

A seminar on the religious and cultural significance of some of the contemporary images of man reflected in: recent writings in philosophy, psychology, political and social theory and communications; developments in the arts and popular culture; the newer religious movements, including Western adaptations of Oriental religious cults; parapsychological research, psychic phenomena, the world of the occult and science-fiction literature. The ideas of selected authors and movements will be examined against the background of the classical Greek, ancient Hebrew and early Christian conceptions of man and the major religious themes and motifs of intellectual traditions of the West. (6 credits)

*Religion N-491 (448)***Special Seminar I**

Prerequisite: Permission of the Department. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (6 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time under Religion N-492.

*Religion N-492 (449)***Special Seminar II**

Prerequisite: Permission of the Department. A student repeating Religion N-491 a second time registers for credits under Religion N-492. (6 credits)

*Religion N-493 (493)***Religious Institutions**

Prerequisite: Permission of the Department. Seminar on a particular period or institution in the history of religion. (3 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time under Religion N-494.

*Religion N-494***Religious Institutions**

Prerequisite: Permission of the Department. A student repeating Religion N-493 a second time registers for credits under Religion N-494. (3 credits)

*Religion N-495***Religious Thinkers**

Prerequisite: Permission of the Department. Seminar on a particular thinker or school of thought in the history of religion. (3 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time under Religion N-496.

*Religion N-496***Religious Thinkers**

Prerequisite: Permission of the Department. A student repeating Religion N-495 a second time registers for credits under Religion N-496. (3 credits)

*Religion N-497 (497)***Topics in Jewish History**

A study of a problem or area of concern in Jewish History. Possible topics might be: the nature of the Dead Sea Sect, the background of the expulsion of the Jews from Spain, Jewish reactions to catastrophe since 1492, Jewish nationalism in the twentieth century, Jewish messianic movements, history of the ancient Near East, history of the Jews in North America. (3 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits provided that a different subject is dealt with the second time. He will register the second time under Religion N-498.

*Religion N-498 (498)***Topics in Jewish History**

Prerequisite: Permission of the Department. A student repeating Religion N-497 a second time registers for credits under Religion N-498. (3 credits)

Social Sciences Division

Assistant Professor of Social Science

Jack Goldner

Applied Social Science

*Professor and Chairman
of the Department*

Richard D. McDonald

Professor

Hedley G. Dimock

Assistant Professors

Robert J. Nagge

J. Alexander Sproule

Lecturer

Raye Kass

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Applied Social Science: major

The following courses, in an approved sequence, constitute a major:

A. *First Year:* Applied Social Science N-212

Third Year: Applied Social Science N-400.

18 credits from the following taken in sequence over the three years: Applied Social Science N-351*, N-413, N-431, N-451*, N-452*, N-441*, N-421*, N-471.

B. Psychology N-271

6 credits from Sociology area (see page 187).

C. 18 additional credits from Sociology and Psychology as follows:

6 credits from Sociology Area III (see page 187). Students may add to this 6 credits from Sociology Areas III or IV.

6 more credits from Psychology N-422, N-428, N-438, N-442, N-452, N-454. (From year to year, substitutions will be allowed from 'Selected Problems' sections in Psychology, with the approval of the Chairman of the Department.)

NOTE: Psychology N-271 must be taken in the first year by students with a collegial course in Psychology (001 or equivalent). In any case it must be taken no later than the second year.

Social Welfare: major

The following courses, in an approved sequence, constitute a major:

A. At the introductory level: Economics N-209* and N-210*; Political Science N-320; Psychology N-211; Sociology N-210.

B. 12 additional credits in Sociology and 12 additional credits in at least one of the other three fields named above.

C. Applied Social Science N-461; Psychology N-241 or Sociology N-241.

*3 credits

Applied Social Science N-212 (212)

Introduction to Applied Social Science

This course is an orientation to the field of applied social science with a specific focus on relating to and working with other people. It includes a consideration of personal identity, inter-personal relations and concepts of helping relationships. (6 credits)

Applied Social Science N-351 (251)

Understanding Group Behaviour

This is a laboratory course which includes participating in a group and analyzing such common group dynamics as leadership, communication, decision-making, member roles and sensitivity to others. (3 credits)

Applied Social Science N-400 (400)

Introduction to Social Intervention

Prerequisite: Permission of the Department. Introduction to the principles and practice of social intervention. Approaches to social problem identification and analysis. The role of the social change agent. Elements of working with individuals, groups and communities. Laboratory periods will permit the application of course content to practice. (6 credits)

Applied Social Science N-413 (413)

Adolescent Behaviour in Urban Areas

Prerequisite: Applied Social Science N-212. A survey of adolescent values, family and group relations, social mobility, friendship patterns, educational and vocational adjustment with a focus on understanding social behaviour in urban communities. Attention will also be given to programmes attempting to enhance adolescent development and reduce social problems. (6 credits)

Applied Social Science N-421 (421)

Administration in Community Serving Organizations

Prerequisite: Permission of the Department. This course explores the uses of administrative process to support the goals of a community serving organization. A variety of administrative

approaches and their applications to the development of an organization (school, hospital, agency) will be explored. Attention will be given to personnel development, planning and systems, and interactions with resource people associated with community organizations. (3 credits)

NOTE: Students who have credits for Applied Social Science 221 may not take this course for credits.

Applied Social Science N-431 (431)

Group Development and Supervision

Prerequisite: Applied Social Science N-212.

Orientation to systematic group development in community-serving organizations. Development of understanding and skill in using group procedures to facilitate communication and decision-making in small groups, classes and committees. Focus on helping others improve their functioning with groups through supervision and training. Each student will study the development of an agency group throughout the year. (6 credits)

Applied Social Science N-441 (441)

Community Development

Prerequisite: Applied Social Science N-212.

Orientation to systematic community problem solving dealing with communications, assessment of needs, decision-making, and inter-group relations, drawing on the contribution of the social sciences. (3 credits)

Applied Social Science N-451 (451)

Principles and Practices of Guidance

Prerequisite: Applied Social Science N-212.

Principles and methods of counselling and guidance with particular reference to their application in the setting of the community-serving organizations. Organization and administration of a guidance service including measurement and appraisal, techniques of counselling, occupational and educational information, and referral, will be considered. (3 credits)

Applied Social Science N-452 (452)

Introduction to Counselling

Prerequisites: Applied Social Science N-212, N-451. A survey of typical problems, information, techniques, principles, policies and points of view useful to professional staff in community-serving organizations; focus on educational, vocational and relationship problems, and the use of counselling techniques in staff relations and supervision. (3 credits)

Applied Social Science N-461 (461)

Social Welfare and the Social Welfare Services

Prerequisite: Second-year standing or permission of the Department. A general course concerned with social welfare problems in modern society: some analysis of these problems in relation to economic and cultural patterns. A description of the functional settings in which social welfare services are practiced. A consideration of the methods used in social welfare, and some consideration of the connective links between social welfare services and religion, law, medicine, nursing, teaching and other professions. (6 credits)

NOTE: Students who have credits for Applied Social Science 462 may not take this course for credits.

Applied Social Science N-471 (471)

Special Projects Seminar

Prerequisites: Second year major in Applied Social Science and permission of the Department. A seminar course for field projects, surveys and research studies undertaken by each student. (6 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time under Applied Social Science N-472.

Applied Social Science N-472 (472)

Special Projects Seminar

Prerequisites: Second year major in Applied Social Science and permission of the Department. A student repeating Applied Social Science N-471 for a second time registers for credits under Applied Social Science N-472. (6 credits)

Applied Social Science N-481 (481)

Special Seminar in Applied Social Science

Prerequisites: Psychology N-211, Sociology N-210 and permission of the Department. The subject for the seminar will vary from year to year reflecting recent developments in social change, new approaches in the behavioural sciences or the special interests of the instructor. (6 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time under Applied Social Science N-482.

*Applied Social Science N-482 (482)***Special Seminar in Applied Social Science**

Prerequisite: Permission of the Department.

A student repeating Applied Social Science N-481 a second time registers for credits under N-482. (6 credits)

*Applied Social Science N-485 (485)***Special Seminar in Applied Social Science**

Prerequisite: Permission of the Department.

The subject for the seminar will vary from year to year reflecting recent developments in social change, new approaches in the behavioural sciences, or the special interests of students or the instructor. (3 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time under Applied Social Science N-486.

*Applied Social Science N-486 (486)***Special Seminar in Applied Social Science**

Prerequisite: Permission of the Department.

A student repeating Applied Social Science N-485 for a second time registers for credits under Applied Social Science N-486. (3 credits)

Economics*Professor and Acting Chairman of the Department*

Muriel Armstrong

Professors

Morido Inagaki

Arthur Lerner

John W. O'Brien

Shreekant A. Palekar

Associate Professors

Jaleel Ahmad

A. Anastasopoulos

Vittorio Corbo

George D. Davidovic

André A. Martens

Balbir S. Sahni

Morton Stelcner, *Acting Assistant Chairman*

Abraham Tarasofsky

Assistant Professors

Peter L. Miles

Barry D. Rosenfeld, *Acting Assistant Chairman**Visiting Associate Professor*

Paul Hohenberg

Students are responsible for satisfying their *particular* degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Economics: major

The following courses, in an approved sequence, constitute a major:

Economics N-209* and N-210*, or N-212.

Economics N-311 or N-312.

Economics N-316 or N-318.

6 credits in economic history chosen from Economics N-330, N-430, N-434, N-438.

Economics N-375*, or Quantitative Methods N-243* and N-244*, or equivalent.

*3 credits

The remainder of 42 credits to be chosen from all other Economics courses.

Economics: joint major component

The following courses constitute the joint major component:

Economics N-209* and N-210*, or N-212;

Economics N-311 or N-312.

Economics N-316 or N-318.

12 additional credits in Economics.

Economics: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

Pattern A

Economics N-209* and N-210*, or N-212; N-311 or N-312; N-318, N-415.

Economics N-270* and N-271* or Mathematics N-203* and N-205*, or equivalent.

Economics N-375* or Quantitative Methods N-243* and N-244*, or equivalent.

6 credits in economic history chosen from Economics N-330, N-430, N-434, N-438.

The remainder of 60 credits to be chosen from all other Economics courses.

Pattern B (emphasis on Mathematical Economics)

Economics N-209* and N-210*, or N-212, N-312, N-318, N-415, N-476*, N-477*.

Economics N-270* and N-271* or Mathematics N-203* and N-205*, or equivalent.

Economics N-375* or Quantitative Methods N-243* and N-244* or equivalent.

6 credits in economic history chosen from Economics N-330, N-430, N-434, N-438.

The remainder of 60 credits to be chosen from Economics N-412*, N-413*, N-442, N-443, N-470*, N-471*.

Commerce students interested in general courses in Economics should take in addition to Economics N-209 and N-210, - Economics N-311, N-316, N-422, N-428, N-429 or N-434.

*Economics N-209 (209)***Introduction to Microeconomics**

An introduction to the analysis of price and wage determination in industry. The differences between competition and monopoly and their implications for prices and economic efficiency are analyzed. The analysis is used to evaluate, among other areas, government policies concerning the regulation of business, including environmental pollution and the distribution of income in a Canadian context. (3 credits)

NOTE: Students who have credits for Economics 011, N-211, 211, N-212 or 013, or 009 or 109 may not take this course for credits.

*Economics N-210 (210)***Introduction to Macroeconomics**

This course is an introduction to the analysis of aggregate economic activity and the operation of the banking system. The theoretical analysis is applied to a discussion of such problems as unemployment, inflation and the balance of international payments and to a consideration of what the government can do to solve the problems. (3 credits)

NOTE: Students who have credits for Economics 011, N-211, 211, N-212 or 013 or 010 or 110 may not take this course for credits.

*Economics N-212 (213)***Introductory Economics**

Prerequisites: Mathematics 001 and 002 or equivalent. This course will cover the same material as Economics N-211, N-209 and N-210. The mathematical training required will allow the material to be covered somewhat more rigorously. (6 credits)

NOTE: Students who have credits for Economics 011, or 013 or 112 may not take this course for credits.

*Economics N-270 (281)***Mathematics for Economists I**

Prerequisite: Economics N-211, or N-209 and N-210 or N-212. In this course, the basic topics of differential and integral calculus will be treated, together with some economic applications. The aim of this course is to equip the student with the elementary tools necessary for understanding the economic literature. (3 credits)

NOTE: Students who have credits for Economics N-211 N-203, N-205 or 005, or Economics 081 may not take this course for credits.

*Economics N-271 (282)***Mathematics for Economists II**

Prerequisites: Economics N-211, or N-209 and N-210 or N-212; N-270 or Mathematics N-203 and N-205, or equivalent. Constrained maximization and minimization; introduction to vector spaces; matrices and determinants; linear programming. (3 credits)

NOTE: Students who have credits for Mathematics 415, 450, 451 or Economics 082 may not take this course for credits.

*Economics N-274 (218)***The Use of Economic Data**

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. Concepts of economic accounting and related measurement techniques, with special reference to the procedures used in Canada and in International economic institutions like the U.N., I.M.F., and O.E.C.D. The topics include: national accounts, input-output tables, flow-of-funds accounts, national balance sheets, international and interregional comparison of economic data, choice of index. (3 credits)

*Economics N-304 (431)***Canadian Economic Policy I**

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. A study of government policies of resource allocation with emphasis on Canadian policy problems. Topics will include government regulation of business, agriculture policy, transportation policy, and tariff policy. (3 credits)

NOTE: Students who have credits for Economics N-404 may not take this course for credits.

*Economics N-305 (432)***Canadian Economic Policy II**

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. A study of trade, government stabilization, growth, and welfare policies with emphasis on Canadian policy problems. Topics will include monetary and fiscal policies, policies to encourage growth, and social security policies. (3 credits)

NOTE: Students who have credits for Economics N-405, or Economics N-431 before 1969-70 may not take this course for credits.

*Economics N-311 (411)***Intermediate Microeconomic Theory**

Prerequisite: Economics N-211, or N-209 or N-212. This course is designed for the student honouring or majoring in Economics. It is a basic course in microeconomic theory; market price determination, theory of consumer demand, theory of the firm, and distribution theory. (6 credits)

NOTE: Students who have credits for Economics 091 or 413 may not take this course for credits.

*Economics N-312 (413)***Microeconomic Theory (Mathematical Approach)**

Prerequisites: Economics N-211, or N-209 or N-212, and N-270, N-271 or permission of the Department. This is a course in intermediate microeconomic analysis. It covers the principal mathematical tools required to deal with

constrained maximization problems. These tools are used to cover the same topics as in Economics N-311. (6 credits)

NOTE: Students who have credits for Economics N-311 may not take this course for credits.

*Economics N-316 (451)***Money and Banking**

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. A general study of the modern theory of income determination and of the principles of commercial and central banking. In particular, the course will deal with the nature and functions of money, national income accounting; some aspects of modern monetary theory, monetary and fiscal policy, commercial and central banking as an instrument of monetary policy, the structure and mechanism of the modern money market, foreign exchange and the problem of inflation. Special emphasis will be placed on monetary and banking problems in Canada. (6 credits)

NOTE: Students who have credits for Economics 051 or N-318 may not take this course for credits.

*Economics N-318 (452)***Intermediate Macroeconomic Theory**

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. A basic course in macroeconomic and monetary theory; with particular reference to the role of monetary institutions and monetary policies. (6 credits)

NOTE: This course is intended primarily for students honouring and majoring in Economics. Others should take Economics N-316. Students who have credits for Economics N-316 may not take this course for credits.

*Economics N-330 (221)***Introduction to Economic History**

This course is built about the central theme of the nature of economic evolution including industrialization. The concept of change in economic organization and institutions will be discussed not only in terms of its effect on the economic life of society, but also with respect to its influence on social, political, and cultural conditions. In keeping with a global view, attention will be given to the non-western world, with emphasis on the nature of contemporary underdevelopment. (6 credits)

NOTE: Students who have credits for Economics 021 or 130 may not take this course for credits.

*Economics N-375 (375)***Introduction to Statistics for Economists**

Prerequisite: Mathematics N-207. The course is an introduction to the application of statistical techniques to economic data. Topics discussed will include, among others, time series, statistical inference, analysis of variance, correlation and regression. (3 credits)

NOTE: Students who have credits for Economics N-275 or 075 or 275 may not take this course for credits.

NOTE: Credits will be given for only one 6 credit course or two 3 credit courses from Economics N-375, Geography N-362 and N-363, Mathematics N-241, Quantitative Methods N-243 and N-244, Statistics 242, Sociology N-241, Psychology N-241 and Psychology N-242.

*Economics N-411 (412)***Advanced Microeconomic Theory**

Prerequisite: Economics N-311, or N-312, or permission of the Department. An extension of microeconomic theory with emphasis on some of the contemporary literature. (6 credits)

*Economics N-412 (484)***Mathematical Economics I**

Prerequisites: Economics N-311; N-316 or N-318. Economics N-270, N-271, or Mathematics N-203, N-205, N-206; or permission of the Department. Demand theory: classical theory and an introduction to the contemporary theory of demand, revealed preference, von Neuman utility functions. Production theory: linear production functions, CES production functions, technological change, input-output analysis, introduction to linear programming. (3 credits)

*Economics N-413 (485)***Mathematical Economics II**

Prerequisite: Economics N-412, or permission of the Department. General equilibrium models, existence and stability; capital accumulation over time. (3 credits)

*Economics N-415 (421)***History of Economic Thought**

Prerequisites: Economics N-311 or N-312; N-316 or N-318. A brief study of the development of economic thought, with special emphasis on the Classical and Neo-classical period, as an introduction to modern economic theories. Designed primarily for honours students. (6 credits)

*Economics N-418 (453)***Advanced Macroeconomic Theory**

Prerequisites: Economics N-211, or N-209 and N-210 or N-212; N-316 or N-318. An extension of Economics N-318 with emphasis on some of the contemporary literature. (6 credits)

*Economics N-420 (454)***Economics of the Public Sector**

Prerequisite: Economics N-311 or N-312 or N-316 or N-318 previously or concurrently. The general objectives of this course are to provide the student with a basic theoretical framework within which to examine the economic role of government and to examine a number of current policy issues in public finance (such as proposals for tax reform, pollution problems and guaranteed annual income schemes). Emphasis is placed on studying the role of government in promoting efficient resource allocation and "equitable" income distribution. (6 credits)

*Economics N-422 (461)***International Economic Relations**

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. Postwar international institutions: IMF, GATT, etc. The international monetary system, its problems and proposed reforms. Currency areas, exchange control systems and clearing systems. European integration and the common market. (3 credits)

*Economics N-423 (462)***Theory of International Trade**

Prerequisites: Economics N-211, or N-209 and N-210, or N-212; N-311 or N-312. A study of the theories of comparative costs and reciprocal demand and their development; the theory of factor reward equalization; the theory of foreign exchanges; the theory of tariffs, customs union theory, and related topics in the theory of international trade. Emphasis will be placed upon the theoretical rather than the institutional analysis of international economics, though the theories will be illustrated by consideration of current problems in international economic affairs. (3 credits)

*Economics N-426 (426)***Urban Economics**

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. This course will focus on the basic issues of explaining the process of economic growth and stagnation, the problems of the urban public economy, and special urban problems such as pollution, congestion, poverty, and housing and urban renewal. (3 credits)

*Economics N-427 (427)***Regional Economics**

Prerequisites: Economics N-311 or N-312; N-316 or N-318 previously or concurrently; or permission of the Department. The primary emphasis is placed upon techniques and methods of regional economic analysis. Among the topics included are: conceptual problems in regional accounting; regional cycles; inter-regional trade theory; input-output analysis in a regional context; measures and analysis of industrial location; and public expenditure analysis in an urban-regional setting. (3 credits)

*Economics N-428 (472)***Labour Economics**

Prerequisite: Economics N-311 or N-312 or N-316 or N-318 previously or concurrently. A study of the theoretical aspects of the labour market; the historical theories of wages; the derivation of demand and supply curves of labour; the theory of wage differentials; labour force measurement; the relation between wage changes and employment; wages and prices; labour productivity and labour's share of national income; types and theories of unemployment; problems of full employment; public policy on wages. These topics will be illustrated by relevant statistical and other material relating to Canada. (3 credits)

NOTE: Students who have credits for Economics 271 or 471 before 1969-70 may not take this course for credits.

*Economics N-429 (471)***Industrial Relations**

Prerequisites: Economics N-211, or N-209 and N-210, or N-212. A study of the general and practical problems that arise in the labour field, such as collective bargaining, the legal framework for the settlement of industrial disputes, the weapons of industrial conflict; the labour movement; contemporary labour issues such as automation, cost-push inflation and structural unemployment. These topics will be illustrated by facts relating to industrial relations in Canada. (3 credits)

*Economics N-430 (420)***Economic History of Modern Europe**

Prerequisites: Economics N-211, or N-209 and N-210, or N-212, or N-330. The course will explore the causes and consequences of the British Industrial Revolution and its diffusion to the Continent in terms of differential national growth patterns and social problems associated with economic change. It will include an analysis

of free trade, economic nationalism, the new imperialism, the importance of the crisis of 1929 in terms of economic organization, thought and policy, and post World War II reorganization, in terms of planning the welfare state, and economic integration. (6 credits)

*Economics N-434 (424)***Economic History of Canada**

Prerequisites: Economics N-211, or N-209 and N-210, or N-212, or N-330. This course is designed to introduce the student to Canadian economic development from the early period of settlement to the present day. Emphasis will be placed on the economic history of Canada since Confederation. (6 credits)

*Economics N-438 (428)***Economic History and Development of the United States**

Prerequisites: Economics N-211, or N-209 and N-210, or N-212, or N-330. This course will deal with the economics of the colonial period, the economic causes of the American Revolution, the role of the North Atlantic Triangle (the U.S., Great Britain and Canada). American economic development prior to and after the Civil War until and including the Great Depression. Following the New Deal period emphasis will be placed on the war economy and postwar economic development. The postwar U.S. international trade and aid policy will also be covered. (6 credits)

*Economics N-440 (422)***Economic Development**

Prerequisites: Economics N-211, or N-209 and N-210, or N-212; N-311 or N-312. A study of the general principles and problems of economic development. There will be some empirical analysis of problems of capital formation, fiscal policies, population growth, foreign investment, and supply of entrepreneurship in selected countries. The theoretical analysis will examine critically the content and applicability of the various growth models including the classical, Marxist, Schumpeterian, Harrod-Domar, Rostow models of economic growth and techniques of development planning in terms of investment criteria and priorities. (6 credits)

NOTE: Students who have credits for Economics N-442 or N-443 may not take this course for credits.

*Economics N-442 (488)***Quantitative Development Economics I**

Prerequisites: Economics N-211, or N-209 and N-210, or N-212; N-271 or equivalent; N-311 or N-312. Methods of national accounting and input-output analysis for underdeveloped countries. Methods of comparing standards of living. Patterns of economic development. Appraisal of models constructed on the premises of modern theories of economic development. (3 credits)

NOTE: Students who have credits for Economics N-440 may not take this course for credits.

*Economics N-443 (489)***Quantitative Development Economics II**

Prerequisite: Economics N-442. The model of economic policy. Planning in stages. The model of linear activity analysis and efficient decentralization of economic decisions. Planning of efficient accumulation of capital. Individual project evaluation. Foreign aid and debt service models. Projection of manpower requirements. Evaluation of empirical applications of optimum planning to underdeveloped economies. (3 credits)

NOTE: Students who have credits for Economics N-440 may not take this course for credits.

*Economics N-446 (423)***The Economic Development of Quebec**

Prerequisites: Economics N-211, or N-209 and N-210 or N-212. This course will review past and present trends in the economic development of Quebec, though emphasis will be placed on the economic growth of Quebec since the Second World War. Attention will be given to the regional aspects of its growth problems. (3 credits)

*Economics N-448 (425)***Studies in Asian Economic Growth**

Prerequisite: Economics N-311 or N-312 or N-316 or N-318 or permission of the Department. This course is designed to deal primarily with the economic growth of South East Asia and includes comparative studies of Japan and India, etc. Policy problems related to the acceleration of economic development of the area will be emphasized. (3 credits)

*Economics N-449 (429)***Studies in Latin American Economic Growth**

Prerequisite: Economics N-311 or N-312 or N-316 or N-318 or permission of the Department. This course deals with the socio-political background of the area since the establishment

of independence in the respective nations.

Emphasis on the role of ideologies, governments in the process of economic growth.

Entrepreneurship, capital formation, agriculture, interregionalism, and external economic aid. (3 credits)

*Economics N-460 (445)***Contemporary Economic Systems**

Prerequisite: Economics N-211, or N-209 and N-210, or N-212 or N-330. A comparative study of contemporary economic systems. While mainly concerned with the institutional features of contemporary free market economies, the course will also deal with their counterpart, the systems of a command economy and a Socialist market economy. Of primary interest will be the institutions, mechanisms and policies which govern allocation, efficiency, growth and distribution of income, with emphasis on the historical background of the institutions and the social, political and ideological influences which continue to shape them. (6 credits)

*Economics N-464 (444)***Marxian Economics**

Prerequisites: Economics N-211, or N-209 and N-210, or N-212, or N-330. A general survey of Marxian theory; Marx's role and influence; his predecessors and followers. The topics that will be discussed include historical and dialectical materialism, the role of the proletariat in Marxian teaching, Marx and the Socialist International, the evolution of Marxian thought, Marx and the labour movement, the labour theory of value, the theory of economic development and the breakdown of capitalism. (3 credits)

*Economics N-465 (443)***Soviet Economics**

Prerequisites: Economics N-211, or N-209 and N-210, or N-212, or N-330. A study of the Soviet economic system and its evolution, its influence on other communist countries, how it differs from western and developing countries. Attention will be given to Lenin's role in the early stages of the Russian Revolution, the period of War — Communism, N.E.P. (New Economic Policy), Stalinist economic planning, the importance of heavy industry, the agricultural sector and the consumer, post-Stalinist industry, the agricultural sector and the consumer, post-Stalinist trends including the economic reforms inspired by Liberman. (3 credits)

*Economics N-468 (447)***Theory and Practice of Cooperation**

Prerequisites: Economics N-211, or N-209 and N-210, or N-212, or N-330, or permission of the Department. This course will deal with the effect of cooperatives on economic and social development with emphasis on Quebec and Canada. Among the topics discussed are the origins and development of the cooperative economy, differences between cooperative, capitalist and communist economic systems; economic, social, educational and moral transformations taking place under cooperative influence, and the role of cooperation on the international political scene. (6 credits)

*Economics N-470 (480)***Mathematics for Economists III**

Prerequisite: Economics N-271 or permission of the Department. Quadratic forms, introduction to differential equations and difference equations. (3 credits)

*Economics N-471 (481)***Mathematics for Economists IV**

Prerequisite: Economics N-470 or permission of the Department. Differential and difference equations, introduction to calculus of variations. (3 credits)

*Economics N-476 (482)***Econometrics I**

Prerequisites: Economics N-270 and N-271; Quantitative Methods N-243 and N-244 or Mathematics N-241 or equivalent. A study of the econometric problems generally associated with single equation multiple regression analysis. A knowledge of basic matrix algebra and mathematical statistics is required. (3 credits)

*Economics N-477 (483)***Econometrics II**

Prerequisite: Economics N-476 or equivalent. In the first part of this course there will be a brief discussion of the estimation problems associated with simultaneous equation econometric problems. The second will be devoted to the analysis of certain specific economic models proposed in the literature. (3 credits)

*Economics N-490 (491)***Advanced Study in a Special Subject**

Prerequisite: Permission of the Department. This course is designed primarily for honours and major students. Its purpose is to provide an opportunity for advanced students to intensify

their study beyond the traditional areas of specialization already represented by the curriculum. The selected subject will vary with the special interest of the instructor offering the course in any given year. (6 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time under Economics N-491.

*Economics N-491 (492)***Advanced Study in a Special Subject**

Prerequisite: Permission of the Department. A student repeating Economics N-490 a second time registers for credits under Economics N-491. (6 credits)

*Economics N-493 (493)***Advanced Study in a Special Subject**

Prerequisite: Permission of the Department. This course is designed primarily for honours and major students. Its purpose is to provide an opportunity for students to intensify their study beyond the traditional areas of specialization already represented in the curriculum. The selected subject will vary with the special interest of the respective instructor offering the course. (3 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time under Economics N-494.

*Economics N-494 (494)***Advanced Study in a Special Subject**

Prerequisite: Permission of the Department. A student repeating Economics N-493 a second time registers for credits under Economics N-494. (3 credits)

Education

Associate Professor and Chairman of the Department

Jitendra Bhatnagar

Professors

Harold Entwistle

John L. Harrison

Associate Professors

Gary Boyd

Mark Braham

Visiting Associate Professor

Thomas S. Allan

Assistant Professors

Gary O. Coldevin

Martha Crampton

Frances Friedman

George Huntley

P. David Mitchell

Assistant Professor of Education and Psychology

Donna White

Lecturers

Elizabeth Egan

Ellen Jacobs

Carolyn Lavers

NOTE: For other courses and programmes which may be of particular interest to teachers, see page 296.

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Early Childhood Education: major

The following courses, in an approved sequence, constitute a major:

Education N-202, N-215, N-261, N-421, N-453*, N-461, Art N-251, Music N-421.

6 credits chosen from Education N-430, N-441, N-451.

6 credits chosen from Education N-415*, N-416*, N-417*.

3 credits chosen from Psychology N-212*, N-213*, N-214*, N-215*, N-302*, N-304, N-305* in consultation with the Department.

NOTE: Every student unless specifically exempted by the director of the programme is required to undertake an internship in the third year as well as internships or workshops in Education N-202, N-215, N-261 and Music N-421.

Education: joint major component

The following courses constitute the joint major component:

30 credits chosen from Education N-201, N-210, N-230*, N-311, N-390*, N-392*, N-415*, N-416*, N-417*, N-421, N-430, N-441, N-451, N-497*.

Philosophy of Education: joint major component

The following courses constitute the joint major component:

Education N-201, N-430, N-441, N-490*, N-491*, N-492*, N-493*.

Education and Philosophy: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

Psychology N-211.
6 credits chosen from Psychology N-212*, N-213*, N-302*, N-303*, N-434.

Education N-421 or N-451.

Education N-430.

Education N-441 (prerequisite: 6 credits at the '200' level in History).

Education N-480 (must be taken concurrently with Philosophy N-480).

Philosophy N-210 or N-211 or the Collegial or other equivalent.

Philosophy N-380.

Philosophy N-221 or N-321 or N-369.

6 credits chosen from Philosophy N-231, N-271, N-273, N-301, N-321, N-369, N-372*, N-374*, N-376*, N-378*, N-396*, N-401, N-403, N-405, N-407, N-431, N-493.

Philosophy N-369 or N-405.

Philosophy N-480 (must be taken concurrently with Education N-480).

Education N-201 (212)

The Nature and Function of Teaching

An introduction to the purpose, theories and methods of teaching. (6 credits)

Education N-202 (202)

Introduction to Early Childhood Education

Prerequisite: Acceptance in Early Childhood Education Major. This course provides an introduction to Early Childhood Education through an examination of the historical background and the organization, objectives and curriculum planning for nursery schools, kindergartens, and day care centres. (6 credits)

Education N-210 (210)

Psychology of Education

This course will introduce the student to a broad range of content in educational psychology including its scope and methods, learning, motivation, growth and development, adjustment, individual differences, guidance, and concept of self. (6 credits)

Education N-215 (215)

Development and Educational Psychology of Early Childhood

Prerequisite: Permission of the Department. This course will study the affective and cognitive development of the child from birth to six years of age with particular reference to familial and other social psychological aspects and their implication for teaching and learning. (6 credits)

Education N-230 (230)

Introduction to Philosophy of Education

This course will introduce the student to the content and form of several major educational theories, and to conceptual and logical procedures of philosophizing about education with particular reference to teaching and learning. (3 credits)

Education N-261 (261)

Subject and Methods of Early Childhood Education

Prerequisite: Acceptance in Early Childhood Education. Students in this course will be concerned with the following topics: art, music and dance, drama, language, number, and environmental studies. They will specialize in three topics. (6 credits)

Education N-311 (311)

Technology for Educational Change

This course comprises a systematic introduction to the role of technology in facilitating educational alternatives. The following topics may be considered: mass communications, computer-based systems, audio-visual instrumentation, simulation and gaming, behaviour science technology, instructional design, learner-controlled instruction, artificial intelligence. (6 credits)

Education N-390 (390)

Current Issues in Education

A consideration of a contemporary issue or issues in education. The issues studied may differ from year to year. (3 credits)

NOTE: With permission of the Department a student may take this course twice for credits provided that a different subject is dealt with the second time. He will register the second time for credits under Education N-391.

Education N-391 (391)

Current Issues in Education

Prerequisites: Education N-390 and permission of the Department. A student repeating N-390 for a second time registers for credits under Education N-391. (3 credits)

Education N-392 (392)

Problems in Education

A cross-disciplinary or integrated approach to an educational problem or problems. The problem studied may vary from year to year. (3 credits)

NOTE: With permission of the Department a student may take this course twice for credits provided that a different subject is dealt with the second time. He will register the second time for credits under Education N-393.

Education N-393 (393)

Problems in Education

Prerequisites: Education N-392 and permission of the Department. A student repeating N-392 for a second time registers for credits under Education N-393. (3 credits)

Education N-401 (401)

Special Methods of Teaching-Elementary

This course is offered only to students enrolled in the Certificate in Education programme. This course will deal with methods of teaching in the elementary school. The course will be individually designed to suit the student's needs. (3 credits)

*Education N-402 (402)***Special Methods of Teaching-Secondary**

This course is offered only to students enrolled in the Certificate in Education Programme. This course will deal with methods of teaching a high-school subject. The course will be individually designed to suit the student's field of specialization. (3 credits)

*Education N-415 (415)***Education of the Slow-Learning Child**

Prerequisite: Psychology N-211. This course will describe the cognitive, social and emotional problems of slow-learning children and discuss educational techniques for coping with these problems. (3 credits)

*Education N-416 (455)***Education of the Gifted**

Prerequisites: Psychology N-211; Education N-215. This course will discuss the special educational problems of gifted children; it will also assess the effectiveness of the techniques usually employed to deal with these problems. (3 credits)

*Education N-417 (442)***Education of the Culturally Disadvantaged**

Prerequisite: Sociology N-210. This course will describe the cognitive, social and emotional problems of culturally disadvantaged children and discuss educational techniques for coping with their problems. (3 credits)

*Education N-421 (421)***Sociology of Education**

Prerequisite: Sociology N-210. The social organization of education activities. The role of educational institutions in socialization, social control and technology. Education and stratification, mobility and social change. (6 credits)

NOTE: Students taking this course for credits cannot register for Sociology N-451 for credits.

*Education N-430 (411)***Philosophy of Education**

Prerequisite: 3 credits at university level in Philosophy or Education N-230. The application of philosophical method with particular reference to the aims, methods, discipline and concepts of education is considered in this course. Students will be expected to become familiar with the principal authors and with the current periodical literature in the field of philosophy of education. (6 credits)

*Education N-441 (431)***History of Educational Ideas**

Prerequisite: 3 credits in History at university level. In this course students will study major educational ideas and idea systems. These will be reviewed in philosophical, religious, political and social perspective. (6 credits)

NOTE: Students who have credits for Education 211 may not take this course for credits.

*Education N-442 (422)***Education in Canada**

Prerequisite: A course in Canadian History. It is advisable that students have a reading knowledge of French. This course will study the history of Canadian education, and, more particularly, the history of education in Quebec. (3 credits)

*Education N-451 (451)***Comparative and International Education**

Prerequisite: Any 6-credit course in Education. The study of educational systems at home and abroad with particular emphasis on educational practice in the United States, the United Kingdom, Western Europe, the Soviet Union, China and the Third World. (6 credits)

*Education N-453 (453)***Education in Quebec**

Students in this course will study the contemporary movements in and structures of Quebec education. (3 credits)

*Education N-461 (461)***Early Childhood Education**

Prerequisite: Education N-202. This course will provide a study of essential teaching areas for kindergarten and nursery schools. The topics will include language development, reading, writing, children's literature and drama, mathematics, science, health, safety and social studies in relation to the psychological and social development of early childhood. (6 credits)

*Education N-465 (459)***Adult Education**

Prerequisite: 6 credits in Education. This course will study the history, philosophy, organization, and special problems of formal and informal adult education, with particular reference to current developments in Canada. (3 credits)

*Education N-471 (471)***Supervised Internship**

This course is offered only to students enrolled in the Certificate in Education Programme. Teaching internship will be carried out in the school where the student is employed. The students will be supervised and their teaching performance evaluated. The students are expected to demonstrate positive evidence of teaching competence and professional behaviour. (6 credits)

*Education N-480 (490)***Honours Essay in Education and Philosophy**

This course must be taken concurrently with Philosophy N-480. (6 credits)

*Education N-490 (412)***Seminar in Epistemology and Education**

Prerequisite: Education N-430 or permission of the instructor. Theories of knowledge are considered in this course, with special attention being given to the bearing of such topics as perception, evidence, truth, knowing and belief on educational thought and practice. Students will be expected to become familiar with recent periodical and other literature in the field. (3 credits)

*Education N-491 (413)***Seminar in Ethics and Education**

Prerequisite: Education N-430 or permission of the instructor. Students in this course will study the principles and methods of moral justification in education. They will be referred to the writing of main authors and recent periodical literature. (3 credits)

*Education N-492 (492)***Seminar in Aesthetics and Education**

Prerequisite: Education N-430 or permission of

the instructor. The nature of aesthetic value and experience, and theories of art and beauty will be examined. The development of the emotions and imagination and their functions in aesthetic awareness are central concerns of this course. Students will be expected to become familiar with the relevant literature in the field. (3 credits)

*Education N-493 (493)***Seminar in Philosophy and Education**

Prerequisite: Education N-430 or permission of the instructor. This is an advanced seminar in philosophical analysis and theory in which students will present papers on, and conduct discussions about, educational concepts, aims and practices. Students will be expected to become conversant with the periodical and other literature in the areas under discussion. (3 credits)

*Education N-497 (497)***Selected Topics in Education**

Prerequisite: Education N-201, or one year's teaching experience, or permission of the Department. Special topics accommodating the interests of the instructor and students. The topics studied may differ from year to year. (3 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time for credits under Education N-498.

*Education N-498 (498)***Selected Topics in Education**

Prerequisite: Permission of the Department. A student repeating Education N-497 for a second time registers for credits under Education N-498. (3 credits)

Geography

Assistant Professor and Chairman of the Department
David B. Frost

Professors
Donald A. Fraser
Bogdan Zaborski

Associate Professors
Ronald W. Bryant
Harry A. Clinch
Michael Marsden
Brian Slack

Assistant Professor
James W. Young

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Geography: major

The following courses, in an approved sequence, constitute a major:

Geography N-211, N-260*, N-261*, N-271, N-362*, N-391*

*3 credits

Geography N-341 or N-343.

12 additional '300' or '400' level credits in Geography.

Geography: joint major component

The following courses constitute the joint major component:

Geography N-211, N-271.

Geography N-260* and N-261*.

12 additional credits in Geography.

Geography: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

Pattern A (emphasis on Physical Geography)

First Year: Geography N-211, N-260*, N-261*, N-271.

Second and Third Years: Geography N-362*, N-391*, N-491.

6 credits chosen from Geography N-341, N-343.

18 credits chosen from Geography N-371, N-372, N-373, N-475, N-476.

6 credits chosen from any '300' or '400' level Geography courses not listed above.

Pattern B (emphasis on Human Geography)

NOTE: Students taking this pattern may specialize in Historical Geography.

First Year: Geography N-211, N-260*, N-261*, N-271.

Second and Third Years: Geography N-362*, N-391*, N-491.

24 credits chosen from Geography N-316, N-321, N-322, N-412, N-422, N-423, including at least one of Geography N-341, N-343.

6 credits chosen from any '300' or '400' level Geography courses not listed above.

Pattern C (emphasis on Economic Geography)

NOTE: Students taking this pattern may specialize in Urban Geography.

First Year: Geography N-211, N-260*, N-261*, N-271.

Second and Third Years: Geography N-362*, N-391*, N-491.

6 credits chosen from Geography N-341, N-343.
18 credits chosen from Geography N-331, N-355, N-357, N-434, N-451, N-457*, N-458*.
6 credits chosen from any '300' or '400' level Geography courses not listed above.

Geography N-211 (211)

Introduction to Human Geography

A study of the evolution of the earth's populated area and the gradual enlargement of geographical horizons. The emphasis will be on cultural distributions, landscape and settlement, and the geography of economic, social, and political activities. (6 credits)

NOTE: Students who have credits for Geography 011 may not take this course for credits.

Geography N-260 (260)

Introduction to Cartography I

A study of the map as a tool of the geographer. Assignments of a practical nature will emphasize the history, design, drawing and use of maps. Additionally, the course will focus on the use and application of qualitative and quantitative materials and methods as they relate to modern cartography. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for 060 or 061; or N-261 or 261 before 1973-74 may not take this course for credits.

Geography N-261 (261)

Introduction to Cartography II

Prerequisite: Geography N-260 or permission of the Department. A study of the map and its use in portraying different types of information in various ways. Additionally, the course will focus on the use of air photos and their interpretation as an aid to the cartographer. Design balance and drawing skills are further developed. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Geography 061 may not take this course for credits.

Geography N-271 (231)

Introduction to Physical Geography

An introduction to the earth sciences as they relate to the environment of man, with special emphasis upon weather, climate and the evolution of landscape. (6 credits)

NOTE: Students who have credits for Geography 232 or 031 may not take this course for credits.

*Geography N-316 (416)***Human Geography**

Prerequisite: Geography N-211, or second year standing in an honours or departmental major programme in a social science. A study of the historical development and methods of research of Human Geography. The course will focus on the following topics: distribution of population, geography of health, distribution of race, language and religion, settlement geography, and the cultural landscape. (6 credits)

*Geography-Interdisciplinary Studies N-321 (448)***Early Man**

Prerequisite: Geography N-211, or second year standing in an honours or departmental major programme in a social science. An examination of the scientific evidence for the unwritten part of man's evolutionary history. The course will study both food-gathering man and food-producing man. The roles of the biological and cultural components will be considered as well as the limiting factor of environment. (6 credits)

NOTE: This course may be counted for credits in either Interdisciplinary Studies or Geography.

*Geography N-322 (421)***Historical Geography of the United States**

Prerequisite: Geography N-211 or second year standing in an honours or departmental major programme in a social science. A study of the patterns of colonization and settlement. Some emphasis will be placed on the evaluation of various approaches used in the writing of historical geography. (6 credits)

NOTE: Students who have credits for Geography N-421 may not take this course for credits.

*Geography N-331 (431)***Urban Geography**

Prerequisite: Geography N-211, or second year standing in an honours or departmental major programme in a social science or the Faculty of Commerce. A study of the prehistoric town, the Greek and Roman town, towns in the Middle Ages, the trading city, the pioneer town and the modern metropolis. The distribution of such towns, their development, growth and internal pattern of organization will be looked at from an historical and geographical point of view. Problems of conurbations and large metropolitan cities in the present age will be discussed and evaluated. Special emphasis will be given to Canadian cities, to their site, function, organization, growth and development as well as to urban problems relating to zoning,

transportation, urban renewal, etc. (6 credits)

*Geography N-341 (441)***Geography of Canada, Past and Present**

Prerequisite: Geography N-211 or second year standing in an honours or departmental major programme in a social science or the Faculty of Commerce. A study of Canada, past and present, based on the various natural regions into which the country is divided. In the first half of the course an historic-geographical approach will be taken to bring to the student's attention the main trends in Canadian cultural and historical development from aboriginal times to the present. The changing nature of man-land relationships at different periods of time, and under different forms of occupation, will receive particular attention. In the second half of the course the present day pattern of human occupation on a regional and national basis will be analyzed. (6 credits)

*Geography N-343 (443)***Geography of the U.S.S.R.**

Prerequisite: Geography N-211 or second year standing in an honours or departmental major programme. A study of the interaction between physical zonal patterns and the distribution of population and its activities. Consideration will be given to the evolution of Slavic, Turkic and other ethnic groups, and to the territorial expansion of Rus', Russia and the U.S.S.R. (6 credits)

*Geography N-355 (455)***Spatial Organization**

Prerequisite: Geography N-211 or second year standing in an honours or major programme in a social science or in the Faculty of Commerce. A study of how man organizes spatial activities with the emphasis on the concepts of spatial interaction, location of activities, diffusion and individual decision. (6 credits)

*Geography N-357 (457)***Resource Utilization and Conservation**

Prerequisite: Geography N-211 or second year standing in an honours or departmental major programme in a social science or the Faculty of Commerce. The resource concept and concepts of conservation. The regional approach to resource management. Case studies of the problems in developing particular natural resources and of interstate areas of poor economic health, with emphasis on the regional and natural parts of such developments. Special

emphasis will be given to Canadian problems and those of selected underdeveloped countries. (6 credits)

Geography N-362 (242)

Quantitative Geography I

Prerequisite: Geography N-261. An introductory course in the applications of descriptive and analytical statistical techniques in Geography. Lectures and laboratory. (3 credits)

NOTE: Only 6 credits will be given from Economics N-375; Geography N-362 and N-363; Mathematics 241; Quantitative Methods N-243 and N-244; Statistics 242; Sociology N-241; Psychology N-241 and N-242.

Geography N-363 (243)

Quantitative Geography II

Prerequisite: Geography N-362. A study of selected multivariate techniques and their application in geography. Practical projects using computer facilities will be assigned. A course in Computer Science would be an asset. (3 credits)

NOTE: Only 6 credits will be given from Economics N-375; Geography N-362 and N-363; Mathematics 241; Quantitative Methods N-243 and N-244; Statistics 242; Sociology N-241; Psychology N-241 and N-242.

Geography N-371 (471)

Biogeography

Prerequisite: Geography N-271 or second year standing in an honours or departmental major programme in the Faculty of Science. A study of distribution of plants and animals with emphasis on their soil and climatic interrelations. Relevant field trips are included. (6 credits)

Geography N-373 (473)

Physical Geography

Prerequisite: Geography N-271 or second year standing in an honours or departmental major programme in the Faculty of Science. A review of modern theories and techniques in geomorphology, hydrology, pedology, denudation chronology and landscape classification. The course includes a discussion of the Pleistocene Epoch in terms of applied research methods. (6 credits)

Geography N-373 (472)

Climatology

Prerequisite: Geography N-271 or second year standing in an honours or departmental major programme in the Faculty of Science. The broad

aspects of world regional climates considered from the point of view of both physical and dynamic climatology. The course includes practical work. (6 credits)

Geography N-391 (461)

History of Geographical Thought

Prerequisite: Geography N-211. A study of the development of the field of geography from ancient times down to the present. Representative geographical works of the Greeks, the Romans and of the Middle Ages. The Age of Discovery, the 19th and 20th centuries will be examined and discussed. The present day concepts of the field and function of geography will receive special attention. (3 credits)

Geography N-412 (412)

Political Geography

Prerequisite: Geography N-316 or permission of the Department. A systematic approach to political geography, on the international and intra-state scales. Emphasis will be on the role of geopolitics and on the interaction of socio-economic fields with politico-administrative spatial structures. (6 credits)

Geography N-422 (422)

Historical and Political Geography of Quebec and Ontario

Prerequisite: Geography N-341. A study of an historical nature of past geographic patterns - economic, social, cultural and political - in Quebec and Ontario. (6 credits)

Geography N-423 (411)

Historical and Political Geography of Europe

Prerequisite: One of Geography N-316, N-321, N-331, N-343. A regional survey of the geographical evolution of European nations and states. Consideration will be given to cultural differentiation and to the distribution of population. (6 credits)

Geography N-434 (434)

Applied Urban Geography

Prerequisite: Geography N-331. A study of urban centres today with the emphasis on the problems arising from urban growth. Attention will be given to the various ways of guiding urban growth - zoning by-laws, and European development controls, and the possibilities of planned development. (6 credits)

*Geography N-451 (452)***Special Seminar in Economic Geography**

Prerequisites: Geography N-355 and N-362 or permission of the instructor. This course will provide opportunities to senior students for discussion and advanced study. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. (6 credits)

*Geography N-457 (460)***Geography of Transportation**

Prerequisite: Geography N-355 or permission of the Department. A study of patterns of transport facilities and traffic flows. Emphasis will be on general concepts of route alignment, network layouts, and on applications of spatial interaction models to economic flows. (3 credits)

*Geography N-458 (458)***Geography of Agriculture**

Prerequisite: Any '300' level Geography course or enrolment in an honours or major programme in a department in the Faculty of Science. Classification of agriculture systems; food production in relation to new biological, cultural and marketing developments. There will be some consideration of land use mapping and land potential assessment. (3 credits)

*Geography N-466 (466)***Applied Cartography**

Prerequisites: Geography N-261 and twelve additional credits in Geography. Advanced techniques in map and diagram making and usage related to all aspects of human and physical

geography, with special emphasis on the practical solution of cartographic problems. Practice periods and assignments. (6 credits)

*Geography N-475 (475)***Hydrology I**

Prerequisite: Any '300' level Geography course or enrolment in an honours or major programme in a department in the Faculties of Science or Engineering. Theories and practice of hydrology with emphasis on geographical aspects and resource utilization. Includes introduction to glaciology. (3 credits)

NOTE: Students who have credits for Geography N-475 or 475 prior to 1973-74, may not take this course for credits.

*Geography N-476 (476)***Hydrology II**

Prerequisite: Geography N-475. Soil moisture experiments, textural analysis, hydrological models and field trips. (3 credits)

NOTE: Students who have credits for Geography N-475 or 475 prior to 1973-74, may not take this course for credits.

*Geography N-491 (492)***Research Methods**

Prerequisite: Permission of the Department. A selected review of the methods and techniques used to acquire and process original geographical information in the field and laboratory. Includes field work and practical sessions. (6 credits)

History

Professor and Chairman of the Department
Robert E. Wall

Professors

Alan H. Adamson
E.E. McCullough
J. Cameron Nish
Lionel Rothkrug
George Rudé
Richard Wilbur

Associate Professors

Charles L. Bertrand
Frederick Bode
Robin Burns
Frank A. Chalk
J. Terry Copp
Donald Ginter
John L. Hill
Frederick H. Krantz

John F. Laffey
Stephen Scheinberg
Irving H. Smith

Assistant Professors

Richard J. Diubaldo
Martin Singer
Edward Whitcomb

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

History: major

The following courses, in an approved sequence, constitute a major:

First Year: History N-210 and 6 additional credits at the '200' level.

Second Year: 12 credits in History, 6 of which may be at the '200' level.

Third Year: 12 credits in History and 12 credits in related disciplines or in History as approved by the Department. At least 6 of the History credits must be at the '400' level.

NOTE: Students must include 6 credits in Canadian History among their electives.

History: joint major component

The following courses constitute the joint major component:

History N-210.
6 credits chosen from History N-221, N-251, N-261.
12 credits at the '300' level in History.
6 additional '300' or '400' credits in History.

History: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

First Year: History N-210 and 12 additional credits at the '200' level, 6 of which may be in a related discipline as approved by the Department.

Second Year: History N-390 and 12 additional credits in History, 6 of which may be at the '200' level, provided that no more than 18 '200' level credits are taken, including History N-210.

Third Year: History N-490 and 6 additional credits in History at the '400' level.
12 additional credits in History must be taken with the proviso that the student may substitute 6 credits in an approved course in a related discipline.

NOTE: Students must include 6 credits in Canadian History among their electives.

History and Philosophy: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

First Year: History N-210, Philosophy N-211.

Second Year: History N-390, 6 credits chosen from History N-333, N-335, N-336.
Philosophy N-380, 6 credits chosen from Philosophy N-301, N-401, N-403.

Third Year: History N-490 or Philosophy N-490.
6 credits chosen from History N-333, N-335, N-336.
6 credits in History at the '400' level chosen in consultation with the departmental honours representative.
Philosophy N-405 or N-407.
6 additional credits in Philosophy at the '300' or '400' level chosen in consultation with the departmental honours representative.

History and Religion: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

Pattern I (Asia)

A. History N-210, N-261, N-361, N-362, N-390.
B. Religion N-213, N-311, N-312, N-313.
C. Sociology N-210, N-424.

Any 6 credits at the '400' level in History or Religion may be substituted for any specified course with the approval of the honours representative. Students who are interested in comparative aspects of Islamic development are reminded that History N-365 is available.

Pattern II (Europe)

A. History N-210, N-390.
B. Religion N-211 or N-213.
C. 42 credits chosen from:

C. 42 credits chosen from:
History N-331, N-332, N-333, N-336;
Religion N-262, N-443, N-461;
Sociology N-210, N-424.

NOTE: Students electing to take Sociology N-210 in the honours programme must take Sociology N-424 as well.

*History N-210 (213)***History of Europe in the Modern World**

A survey of the history of European civilization. An attempt is made to present and analyze in an integrated way all aspects of European society and culture in its rise to a dominant world position. (6 credits)

NOTE: Students who have credits for History 013 may not take this course for credits.

*History N-211 (211)***History of Ancient and Medieval Civilization**

The story of early mankind is outlined and the origins of the great civilizations of Europe and Asia are studied. After surveying the classical civilizations, the course concludes with a study of the medieval period. (6 credits)

NOTE: This course does not fulfill prerequisite requirements for advanced courses in History. Students who have credits for History 011 may not take this course for credits.

*History N-221 (221)***History of Canada**

A study of the growth of Canada from the age of exploration to the present time. Emphasis is placed on the political, economic and cultural developments which are of significance in the understanding of the problems of today. (6 credits)

NOTE: Students who have credits for History 021 may not take this course for credits.

*History N-251 (251)***History of the United States**

An analysis of the development of the United States, emphasizing the formation of classes and interest groups in early America, the significance and impact of slavery, the sectional battle over national power and its resolution through Civil War and Reconstruction, the development of the modern corporation, the organization of the labour movement, the impact of racism, and the course of American expansion. (6 credits)

NOTE: Students who have credits for History 451 or 051 may not take this course for credits.

*History N-261 (261)***Historical and Cultural Background of Modern Asia**

A survey of the major intellectual traditions, social structures and political institutions of South and East Asia, with particular attention to

the changes in the societies of India and China during the past two centuries. (6 credits)

NOTE: Students who have credits for History 061 may not take this course for credits.

*History N-321 (423)***British North America: 1760-1873**

Prerequisite: History N-210 or N-221. An advanced study of the history of British North America from the British conquest and American Revolution to Confederation. The course will focus on historical topics and problems of interpretation, organized according to the regions of British North America. (6 credits)

*History N-322 (424)***Modern Canada: 1840 to the Present**

Prerequisite: History N-210 or N-221. An intensive study of the political, economic and cultural development of Canada since the Act of Union. (6 credits)

NOTE: Students who have credits for History 024 may not take this course for credits.

*History N-323 (422)***French Canada to 1840**

Prerequisite: History N-210 or N-221. An intensive study of Canada during the colonial regime. Much of the material will be in French. (6 credits)

*History N-324 (426)***Quebec: 1840 to the Present**

Prerequisite: History N-221 or N-332 previously or concurrently. An intensive study of Quebec since the Act of Union. While due importance will be devoted to the political history of Quebec, the purpose of the course is to provide a study in depth of the social, economic and cultural institutions of Quebec. (6 credits)

*History N-328***Women in Western History**

A review of the position and roles of women in Western history prior to the 17th century. Beginning with the 17th century, a more detailed discussion of these themes and close scrutiny of selected problems having to do with the roles of women in Europe, Canada and the United States during the last two centuries. Among the problems to be treated will be the history of the Feminist movements, the relationship of women to the process of industrialization and the impact of the world wars of this century on the condition of women. (6 credits)

*History N-331 (412)***History of Medieval Europe**

Prerequisite: Second year standing. A study of the society and institutions of medieval Europe from the fall of Rome to the end of the 15th century. (6 credits)

*History N-332 (414)***History of Early Modern Europe, 1400-1640**

Prerequisite: History N-210. European history in the Renaissance and Reformation periods. Special attention is given to the shift from Medieval to Renaissance civilization in Italy and to the development of early modern societies in Northern Europe. Specific analytical focus is placed on studying the nature of, and relationships between, pre-modern economic, social and cultural structures. Issues involved in the transition to modern societies on different national bases are also stressed. (6 credits)

*History N-333 (415)***Enlightenment and Revolution, 1640-1848**

Prerequisite: History N-210. European history in the age of the French Revolution, including a study of the scientific and industrial revolutions. (6 credits)

*History N-335 (442)***Social and Intellectual History of Early Modern Europe**

Prerequisite: History N-210. A study of change and continuity in European society and culture, 1300 - 1650. Problems studied include feudal-capitalist relationships, the Italian Renaissance, Northern State Development, Protestant Reformation, Scientific Revolution and European Colonial expansion. Methodological issues will be emphasized. (6 credits)

*History N-336 (444)***Social and Intellectual History of Modern Europe**

Prerequisite: History N-210. The intellectual systems arising in Europe since the 17th century will be explored in the context of the economic and social circumstances which engendered them. This course will begin with the rise of theories of "possessive individualism" and will end with the contemporary cultural crisis. While attention will be paid to the general dynamics of culture, special attention will be devoted to the social functions of particular ideologies. (6 credits)

*History N-337 (413)***History of European Diplomacy, 1870 to the present**

Prerequisite: History N-210 or Political Science N-385. An intensive study of the relations

amongst the Great Powers of Europe from the Franco-Prussian War to the present. (6 credits)

*History N-341 (441)***History of Russia**

Prerequisite: History N-210. This course traces the origin of the Slavic-speaking peoples in Europe and the emergence of the Russian Empire. It discusses the ideology and history of Bolshevism, and the period under communist government in the U.S.S.R. and among the Slavic peoples. (6 credits)

*History N-342 (445)***Problems in Russian and Soviet History**

Prerequisites: History N-210; History N-341 or permission of the instructor. This course deals with specific problems in Tsarist and Soviet Russia. In the Pre-Revolutionary period attention is focussed on the emancipation of the peasantry, industrialization and the growth of the opposition parties. In the Soviet period emphasis is placed on the problems of economic growth, the changing pattern of Soviet Marxism and the nature of Soviet foreign policy. (6 credits)

*History N-345 (431)***History of Britain since 1460**

Prerequisite: History N-210; students honouring in English may register without prerequisite. A survey of the political, economic and social development of modern England. Emphasis is placed on the evolution of parliamentary government in the early period, on the economic changes of the 18th and 19th centuries and on the modern growth of democracy and the social service state. (6 credits)

*History N-346 (416)***Europe - 1848-1918**

Prerequisite: History N-210. A study of the internal development and external relations of the most important states of Western Europe from 1848 to 1918. (6 credits)

NOTE: Students who have credits for History 334 or 016 may not take this course for credits.

*History N-347 (416)***Europe - Since 1918**

Prerequisite: History N-210. A study of the internal development and external relations of the Western states of Europe from 1918 to the present. (6 credits)

*History N-351 (453)***Colonial and Early National History of the United States**

Prerequisite: History N-210 or N-251. The period of colonization, the development of colonial institutions, the war of independence and the emerging fabric of national life. (6 credits)

*History N-352 (459)***Jacksonian Era, Civil War, and Reconstruction in the United States.**

Prerequisite: History N-210 or N-251. The development of American political, social and economic life in the 19th century, including sectionalism and expansion, the characteristics of plantation slavery as a social system, the coming of the Civil War, and the aims and outcome of Reconstruction. (6 credits)

NOTE: Students who have credits for History N-334 may not take this course for credits.

*History N-354 (456)***History of the United States since 1900**

Prerequisite: History N-210 or N-251. This course examines major themes of modern American society including the politics of reform, strategies for black survival, and movements for social change. The major emphasis is given to domestic themes. (6 credits)

*History N-355 (455)***Foreign Relations of the United States**

Prerequisite: History N-210 or N-251. An analysis of United States foreign policy from 1776 to the present, emphasizing the development of American expansion, America's foreign economic thrust, the origins of the Cold War, America's response to the challenge of revolution in Asia, Africa and Latin America, and major issues in Canadian-American relations. (6 credits)

*History N-358 (452)***History of Latin America**

Prerequisite: History N-210 or enrollment in the major in Spanish. This course deals with the political, social and economic history of Latin America from the founding of the Spanish Empire to the present day. The development of the principal independent republics is studied and attention is given to the growth of Inter-Americanism and to the place of Latin America in the modern world. (6 credits)

*History N-361 (461)***History of South and Southeast Asia**

Prerequisite: History N-261 or permission of the instructor. A study of the historical background of India, Pakistan, Bangladesh and the states of Southeast Asia. The course begins with a review of indigenous developments prior to the era of European expansion and proceeds to a more detailed examination of the political, social and economic changes in modern times, concluding with a study of the problems faced by these countries since the achievement of independence. (6 credits)

*History N-362 (462)***Modern China**

Prerequisite: History N-261 or permission of the Department. An intensive study of Chinese history since 1800 with emphasis on problems in political and intellectual history. (6 credits)

*History N-363 (463)***Traditional China**

Prerequisite: History N-261 or permission of the Department. An examination of Chinese history from the beginning to the Ch'ing dynasty (c. 1800). Emphasis will be placed on China's political, intellectual and cultural heritage. (6 credits)

*History N-365 (481)***History of Africa**

Prerequisite: History N-210 or N-261. An analysis of African history, including Egypt and North Africa, from the beginnings of African societies to the present, emphasizing the rise of African kingdoms, the coming of Europeans and the slave trade, African responses to economic imperialism and colonialism, and contemporary Africa's quest for autonomy, economic development, and the liberation of southern Africa. (6 credits)

*History N-390 (472)***Historical Method**

Prerequisites: At least twelve credits in History and written permission of the History programme advisor. A course in the application of modern historical criticism to a specific problem to be chosen in consultation with the instructor. (6 credits)

*History N-421 (421)***Advanced Study in Canadian History**

Prerequisite: A '300' level course in History or permission of the Department. Seminar for honours and major students in a selected topic in the history of Canada. The emphasis will be

on encouraging students to conduct historical investigation on their own under a professor's guidance. The specific content will vary from year to year depending on the instructor. (6 credits)

History N-431 (434)

Advanced Study in European History

Prerequisite: A '300' level course in History or permission of the Department. Seminar for honours and major students in a selected topic in the history of Europe. The emphasis will be on encouraging students to conduct historical investigation on their own under a professor's guidance. The specific content will vary from year to year depending on the instructor. (6 credits)

History - Interdisciplinary Studies N-446 (446)

Advanced Study in the History of Science

Prerequisite: Permission of the instructor. Seminar in a selected topic in the History of Science. The emphasis will be on encouraging students to conduct historical investigation on their own under a professor's guidance. The specific content will vary from year to year depending on the instructor. (6 credits)

NOTE: With permission of the instructor, a student may take this course twice for credits provided that a different subject is dealt with the second time. A student repeating Interdisciplinary Studies N-446 for credits will register under Interdisciplinary Studies N-447.

NOTE: Students who have credits for Humanities of Science N-446 may not take this course for credits.

History - Interdisciplinary Studies N-447 (447)

Advanced Study in the History of Science

Prerequisite: Permission of the instructor. A student repeating Interdisciplinary Studies N-446 for a second time registers for credits under Interdisciplinary Studies N-447. (6 credits)

History N-451 (451)

Advanced Study in American History

Prerequisite: A '300' level course in History or permission of the Department. Seminar for honours and major students in a selected topic in the history of the United States. The emphasis will be on encouraging students to conduct historical investigation on their own under a professor's guidance. The specific content will vary from year to year depending on the instructor. (6 credits)

History N-461 (463)

Advanced Study in Asian and African History

Prerequisite: A '300' level course in History or permission of the Department. Seminar for honours and major students in a selected topic in the history of Asia and Africa. The emphasis will be on encouraging students to conduct historical investigation on their own under a professor's guidance. The specific content will vary from year to year depending on the instructor. (6 credits)

History N-490 (474)

Honours Essay

Prerequisite: Honours students only. A course in the application of modern historical criticism to a specific problem to be chosen in consultation with the instructor. (6 credits)

History N-491 (473)

Advanced Study in a Special Subject

Prerequisite: Permission of the Department. This course, intended primarily for honours or major students, affords an opportunity for more intensive examination of a particular historical theme than is possible in the normal lecture course. The specific subject will vary according to the special interest of the professor offering the course in any given year. (6 credits)

NOTE: With permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. A student repeating History N-491 for credits will register under History N-492.

History N-492 (475)

Advanced Study in a Special Subject

Prerequisite: Permission of the Department. A student repeating History N-491 a second time registers for credits under history N-492. (6 credits)

History-Sociology N-493 (493)

History and Sociology

Prerequisites: An introductory course in History and in Sociology and second or third year standing. An exploration of the relationships between historical and sociological approaches to the description and analysis of social conditions and social events, paying special attention to questions of methodology and conceptualization. (6 credits)

NOTE: This course may be counted for credits in either History or Sociology.

Political Science

Associate Professor and Chairman of the Department

Harold M. Angeli

Professor

Herbert F. Quinn

Associate Professors

Paris Arnopoulos

Klaus J. Hermann

Lalita P. Singh

Visiting Associate Professor

George Roseme

Assistant Professors

Horst Hutter

Harvey Shulman

Students are responsible for satisfying their particular degree requirements, hence the following sequences *must* be read in conjunction with pages 76 - 101.

Canadian Politics: major

The following courses, in an approved sequence, constitute a major:

A. Political Science N-231, N-330, N-335*, N-337, N-436*, N-437*.

B. 12 additional credits in Political Science in theory, comparative politics, or international relations.

C. 6 additional credits in a related discipline with Canadian content or in Political Science. The courses must be approved by the Department of Political Science.

Comparative Political Studies: major

The following courses, in an approved sequence, constitute a major:

A. Political Science N-240, N-458.

B. 24 credits chosen from Political Science N-330, N-333, N-350, N-351, N-353, N-355.

C. 12 credits with relevant comparative or area studies content from Political Science or other departments. The courses must be approved by the Department of Political Science.

Political Science: major

The following courses, in an approved sequence, constitute a major:

A. Political Science N-320 or N-311, N-240, N-270, N-330.

B. 6 credits from each of the four areas in Political Science.

NOTE: For a breakdown of the Areas see departmental offerings below.

Political Science: joint major component

The following courses constitute the joint major component:

A. 18 credits chosen from Political Science

N-240, N-270, N-320, N-370.

B. 12 additional credits in Political Science.

Political Science: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

A. Political Science N-240, N-270, N-320, N-330.

B. 6 credits chosen from each of the four areas in Political Science.

C. Political Science N-415, N-491.

NOTE: Students are strongly advised to learn a foreign language or take a course in statistics.

International Affairs: Major

The following courses, in an approved sequence, constitute a major:

A. Political Science N-270, N-385, N-437*, N-481, N-483.

B. 21 credits with relevant international content in Political Science or from other departments. The courses must be approved by the Department of Political Science.

Area I - Theory

N-311 - History of Political Thought

N-320 - Problems and Concepts in Political Theory

N-413 - Modern Political Ideologies

N-415 - Political Analysis

Area II - Comparative Politics

- N-240 - Comparative Politics
- N-321 - Women and the Law
- N-333 - Problems of Public Administration
- N-334 - Urban Politics
- N-350 - Government and Politics of the United States
- N-351 - Political Systems of Western Europe
- N-353 - Soviet and Eastern European Politics
- N-355 - Politics of Developing Areas
- N-472 - Science and Public Policy
- N-458 - Political Parties

Area III - International Relations

- N-270 - International Relations
- N-381 - International Law
- N-483 - International Organization
- N-485 - Diplomacy and Foreign Policy

Area IV - Canada

- N-231 - Public Law
- N-321 - Women and the Law
- N-330 - Government and Politics of Canada
- N-334 - Urban Studies
- N-335 - Quebec Politics
- N-436 - Canadian Federalism
- N-437 - Canadian External Affairs

*Political Science N-231 (291)***Public Law**

This course is designed to provide students with an elementary knowledge of those institutions and problems of law of which they may reasonably be expected as citizens to have some understanding and appreciation. As a background to this study the meaning of law and its various divisions will be treated with a view to relating the legal order to present day problems of society. Topics will include the organization and functioning of the federal and provincial court systems including the appointment and selection of the judiciary; the various stages in a lawsuit; a brief consideration of the Quebec civil law as it affects the question of marriage and the more common contracts such as sale, lease and partnership. (6 credits)

NOTE: Students who have credits for Political Science 091 may not take this course for credits.

*Political Science N-240 (211)***Comparative Politics**

A course in comparative politics with special emphasis on the dynamics of the political process. Going beyond constitutional and institutional procedures, this course will include the study of informal realities of decision-

making. Most of the illustrative content is based on a comparative study of Canada, the United States, Great Britain and France. (6 credits)

NOTE: A student who has credits for Political Science 011 may not take this course for credits.

*Political Science N-270 (421)***International Relations**

A course in world affairs dealing with the political, ideological and cultural relations between states and the main characteristics of the global power system. (6 credits)

NOTE: A student who has credits for Political Science 021 may not take this course for credits.

*Political Science N-311 (431)***History of Political Theory**

A critical study and analysis of such great thinkers as Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, Hegel, Bentham and Mill on problems of politics. This course is designed to give a survey of systematic political reasoning from the classical period up to the middle of the 19th century in an endeavour to show the foundations of modern political thought. (6 credits)

NOTE: Students who have credits for Political Science 031 may not take this course for credits.

*Political Science N-320 (420)***Problems and Concepts in Political Theory**

A course in political theory emphasizing key concepts such as equality, liberty and power. The content of the course will include basic methodology and terminology to the extent that the thematic orientation in any given year requires its inclusion. (6 credits)

NOTE: Students who have credits for N-210, N-220, 210 or 010 may not take this course for credits.

*Political Science N-321 (425)***Women and the Law**

A historical and comparative study of the status of women as seen in different legal systems. The course will deal with women in relation to private, family and public law. The framework will be primarily legal, but will also include a consideration of the social and political implications of women's legal status. Special attention will be directed to Quebec and Canadian law. (6 credits)

*Political Science N-330 (251)***Government and Politics of Canada**

A study of the parliamentary system in Canada with emphasis placed upon the development and judicial interpretation of the British North America Act, the federal system, the nature and organization of political parties, the evolution of cabinet rule, the judicial structure and contemporary problems in Canada. (6 credits)

NOTE: A student who has credits for Political Science 051 may not take this course for credits.

*Political Science N-333 (441)***Problems of Public Administration**

Prerequisite: Political Science N-240 or N-330.

This course deals with the nature and function of the administrative branch of government. The student is introduced to such problems as the organization of government departments, the management of government corporations, budgeting, selection and training of personnel, maintenance of morale and discipline, relationship between legislature and administration, relationship between the administration and the public. (6 credits)

*Political Science N-334 (434)***Urban Politics**

Prerequisite: Political Science N-240 or N-330.

A course in the problems and prospects in urban politics with special emphasis on the processes of the local community. This course, although primarily dealing with urban politics in Canada, will also go beyond national boundaries for its comparative treatment. (6 credits)

*Political Science N-335 (435)***Quebec Politics**

Prerequisite: Political Science N-330. A study of the changing party structure and political issues in Quebec and their relationship to constitutional, cultural and economic factors. Some of the reading material will be in French. (3 credits)

*Political Science N-350 (450)***Government and Politics of the United States**

A study of American politics which will deal not only with formal political institutions such as the legislature, the executive and the judiciary, but also the processes and problems of government: public opinion, political parties, pressure groups, health and welfare, foreign policy and racial problems. (6 credits)

NOTE: A student who has credits for Political Science N-354 or 414 may not take this course for credits.

*Political Science N-351 (412)***Political Systems of Western Europe**

Mainly a comparative study of the political systems of Britain, France and Western Germany, but some consideration will be given to the smaller states in Western Europe, such as Switzerland and the Scandinavian countries. (6 credits)

NOTE: Students who have credits for Political Science N-451 or either Political Science 416 or 417 before 1969-70 may not take this course for credits.

*Political Science N-353 (453)***Soviet and East European Politics**

A study of the constitutional, political and administrative system of the Soviet Union and the East European states. Emphasis will be placed on the continuing evolution of the Communist system and the changing relationship between the Soviet Union and the other states. (6 credits)

NOTE: A student who has credits for Political Science N-352 or 413 may not take this course for credits.

*Political Science N-355 (455)***The Politics of Developing Areas**

A study of the politics and structure of government in developing areas such as Asia, Africa or South America against the background of social and economic change since World War II. The specific area which will be studied will vary from year to year depending on the interests of the instructor. (6 credits)

NOTE: Students who have credits for Political Science N-356 may not take this course for credits.

*Political Science N-381 (423)***International Law**

This course will survey the theory and practice of international law from its traditional classical origins to the modern contemporary developments with emphasis on the political and interstate relations aspects. The first half of the course will include basic concepts of the nature of law, state sovereignty, treaties, nationality, jurisdiction, recognition, arbitration and cases of international legal order; control of world conflicts, codification of law, settlement of disputes by the International Court of Justice, human rights and the relation of law to power politics. (6 credits)

NOTE: Students who have credits for Political Science N-481 may not take this course for credits.

*Political Science N-413 (432)***Modern Political Ideologies**

Prerequisite: Political Science N-210 or N-220 or N-311 or Philosophy N-271. This course will cover political theories of the 19th and 20th centuries, dealing with such ideologies as Liberalism, Conservatism, Marxism, Democratic Socialism and Fascism. (6 credits)

*Political Science N-415 (433)***Political Analysis**

Prerequisites: Political Science N-311 or N-320 (old N-210 or N-220) and one additional course in Political Science. A study of the contemporary subject matter and methods of political science. The course deals with: 1) fundamental concepts, principles, institutions, and processes of politics; 2) methods, techniques, instruments and data of social sciences; 3) present theories, such as functionalism, behaviourism, formalism; 4) political ideals and their impact on policy making and social control. In addition to the theoretical analysis, critique and evaluation of the latest thinking in political science, the student will participate in the testing and practical laboratory periods. (6 credits)

*Political Science N-436 (451)***Canadian Federalism**

Prerequisite: Political Science N-330. A critical and analytical study of the theory of federal government and its application to the nature, principles and techniques of federalism in Canada. The reaction of the Canadian federal system to the demands of cultural dualism and regional pressures. Some attention will also be given to the problems of provincial governments in their pressure on and adjustment to Dominion-Provincial relations. (3 credits)

*Political Science N-437 (452)***Canadian External Affairs**

Prerequisite: Political Science N-270 or N-330 or History N-337. This course will study Canada's position in the world. The presentation will include an outline of the diplomatic history of Canada, as well as an analysis of its foreign and defence policies. Emphasis will be given to the decision-making process by which policy is formulated and executed, with particular reference to Canadian relations vis-à-vis the Americans; the Commonwealth; and the United Nations. (3 credits)

*Political Science N-458 (411)***Political Parties**

Prerequisite: Political Science N-240 or N-451. A study of the history, ideology, organization and

electoral geography of political parties in the United States, England, France, Germany and some of the smaller countries in Western Europe. The course will also deal with the different types of party systems, the nature and function of parties in the democratic process, the nature of political elites, pressure groups, the organization of elections and political propaganda. Lectures, discussions and term paper. (6 credits)

*Political Science N-465 (465)***Advanced Study in a Special Subject**

Prerequisites: Six credits in Political Science and enrolment in a major or honours programme in the Social Sciences. Subject matter will vary from year to year depending on the interests of the instructor. This course will provide opportunities to senior students for discussion and advanced study. (6 credits)

NOTE: With the permission of the Department a student may take this course twice for credits provided that a different subject is dealt with the second time. A student repeating Political Science N-465 for credits will register under Political Science N-466.

*Political Science N-466 (466)***Advanced Study in a Special Subject**

Prerequisites: Political Science N-465 and permission of the Department. A student repeating Political Science N-465 for a second time registers for credits under Political Science N-466. (6 credits)

*Political Science/Interdisciplinary Studies N-472 (472)***Science and Public Policy**

Prerequisites: Interdisciplinary Studies N-201, N-202. The relationship between science and government. Particular emphasis is placed on such problems as the role of the scientist in political decision-making, the making of Canadian science policy, the mix of basic, applied and mission-oriented research, the relations of science and the military, the nature of technocracy and the role of science in economically developing nations. (6 credits)

*Political Science N-483 (422)***International Organization**

Prerequisite: Political Science N-210 or N-385. The historical development of the concepts of international organization with special emphasis upon the 19th and 20th centuries. The League of Nations and the United Nations with its specialized agencies will be examined carefully. In addition, certain other international bodies of

a regional or specialized nature such as EEC, OAS, OAU and regional integration schemes in general will be considered. (6 credits)

NOTE: Only 6 credits will be given from Political Science 221 or 422.

Political Science N-485 (485)

Diplomacy and Foreign Policy

Prerequisite: Political Science N-270. Foreign and defence policies of the Great Powers; diplomacy, military strategy and intelligence; methods and techniques of policy-making and enforcement. (6 credits)

Political Science N-491 (491)

Honours Seminar

Prerequisite: Open to third year honours students or by permission of the Department. Students will choose a topic from one of the various fields in political science. Each student must prepare and submit an appropriate research paper, under the supervision of the Department. (6 credits)

Psychology

Professor and Chairman of the Department
Jane Stewart

Professors

A. Harold Goldsman
G.M. Mahoney
Alex Schwartzman
Joseph P. Zweig

Associate Professors

David H. Andres
June S. Chaikelson
Gabriel R. Breton
Dolores Gold
Anthony Hilton
William R. Hooper
Tannis Y. Maag
Stanley R. Munoz

Erat S. Nayar
Campbell W. Perry
Nancy D. Taylor
Roy A. Wise

Assistant Professors

Zalman Amit
William Brender
Thomas Gray
Susan Lederman
Henry Lavigueur
Norman Segalowitz
Peter Seraganian

Lecturer

George Nemeth

Assistant Professor of Education and Psychology
Donna White

Students are responsible for satisfying their particular degree requirements, hence the following sequence *must* be read in conjunction with pages 76 - 101.

Psychology: major

The following courses, in an approved sequence, constitute a major:

Psychology N-271 or N-273, N-412.

30 credits chosen from among Psychology N-241 or N-242, N-375*, N-413, N-421, N-422, N-428, N-432, N-434, N-438, N-442, N-452, N-454, N-461, N-462, N-471, N-481, N-482, N-491*, N-492*, N-493*, N-494*. At least 6 of these 30 credits must be from among Psychology N-421, N-422, N-432, N-461.

NOTE: Students planning to do graduate work in Psychology or related fields should take Psychology N-241 or N-242 in their first or second year.

*3 credits

Psychology: joint major component

The following courses constitute the joint major component:

Psychology N-271

24 credits chosen from Psychology N-241 or N-242, N-412, N-421, N-422, N-428, N-432, N-434, N-438, N-442, N-452, N-454, N-461, N-462, N-481, N-482. 6 of these 24 credits may be chosen from Psychology N-302*, N-303*, N-304*, N-305*, N-402*, N-403*, N-404*, N-405*.

Psychology: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

First Year: Psychology N-241 or N-242, N-273 (see NOTE), N-412.

Second Year: 18 credits chosen from Psychology N-421, N-422, N-428, N-432, N-434, N-438, N-442 and N-461. In addition Psychology N-375* may be taken as an option.

Third Year: Psychology N-413, N-472. 6 credits chosen from Psychology N-421, N-422, N-428, N-432, N-434, N-438, N-442, N-452, N-454, N-461, N-462, N-481, N-482, N-491*, N-492*, N-493*, N-494*.

NOTE: Students who have taken Psychology N-271 in their first year and who are then accepted into the honours programme will be exempted from Psychology N-273, but may be required to take Psychology N-471 in their second year.

Social Psychology: major

The following courses, in an approved sequence, constitute a major:

Psychology N-271 or Psychology N-273.

Psychology N-412 and Sociology N-420 or Psychology N-442 and Sociology N-430.

6 credits chosen from Sociology N-422, N-443, N-446.

6 credits chosen from Psychology N-422, N-432, N-434.

Psychology N-428 or Sociology N-411.

6 additional credits from either Anthropology or Sociology.

Social Psychology: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

First Year: 6 credits from Psychology N-241 or N-242 or Sociology N-241. Psychology N-273 (see NOTE). Psychology N-412 or Sociology N-430.

Second Year: Sociology N-420 (if Psychology N-412 was taken in first year) or Psychology N-442 (if Sociology N-430 was taken in first year). 6 credits from Sociology N-422, N-433, N-446. 6 credits from Psychology N-422, N-432, N-434.

Third Year: Psychology N-428 or Sociology N-411. Psychology N-472 or Sociology N-481. 6 credits from Anthropology, Psychology or Sociology.

NOTE: Students who have taken Psychology N-271 in their first year and who are then accepted into the honours programme will be exempted from Psychology N-273, but may be required to take Psychology N-471 in their second year.

NOTE: A major or honours programme in Psychology may also be taken for a Bachelor of Science degree. (See requirements page 196)

NOTE: Courses entitled "Selected Problems in..." are intended for students majoring in fields other than Psychology. A student may register for only one of these courses per term.

Psychology N-211 (211)

Introductory Psychology

The purpose of this course is the development of an adequate understanding of known principles of behaviour and experience. The work includes a study of the sense organs and nervous system, perception, learning, memory, motivation and the basic needs, emotional reactions, personality development, adjustment and integration, abnormal personality, mental abilities and aptitudes, social aspects of behaviour and the applications of psychology. (6 credits)

NOTE: Students who have credits for CEGEP Psychology 101 and 201, or 011 may not take this course for credits.

Psychology N-212 (212)

Selected Problems in Learning and Motivation A

Prerequisite: Psychology N-211 or 011 or CEGEP Psychology 101 and 201 or second year standing. This course will deal with a selected problem in learning and motivation to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: operant behaviour; memory; teaching and learning; maternal behaviour; aggression; sleep. (3 credits)

NOTE: Students who have credits for Psychology 421 or N-421 or 422 or N-422 may not take this course for credits.

Psychology N-213 (213)

Selected Problems in Learning and Motivation B

Prerequisite: Psychology N-211 or 011 or CEGEP Psychology 101 and 201 or second year standing. This course will deal with a selected problem in learning and motivation to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: operant behaviour; memory; teaching and learning;

maternal behaviour; aggression; sleep. (3 credits)

NOTE: Students who have credits for Psychology 421 or N-421 or 422 or N-422 may not take this course for credits.

Psychology N-214 (251)

Selected Problems in Individual Differences A

Prerequisite: Psychology N-211 or 011 or CEGEP Psychology 101 and 201 or second year standing. This course will deal with a selected problem in individual differences to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: creativity; intelligence; self-awareness and self-esteem; leadership. (3 credits)

Psychology N-215 (252)

Selected Problems in Individual Differences B

Prerequisite: Psychology N-211 or 011 or CEGEP Psychology 101 and 201 or second year standing. This course will deal with a selected problem in individual differences to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: creativity; intelligence; self-awareness and self-esteem; leadership. (3 credits)

Psychology N-241 (241)

Statistical Methods in Psychology A

Prerequisites: Any two CEGEP semester courses in mathematics. A basic course in the fundamentals of statistics for psychology and education. Topics include: the construction of frequency distributions; graphic presentation; measures of central tendency and dispersion; correlation and linear regression; elementary probability theory; the binomial distribution and the normal curve; sampling or the reliability of statistics and tests of significance; Chi square; analysis of variance; miscellaneous non-parametric techniques. Lectures and laboratory. (6 credits)

NOTE: Only 6 credits will be given from: Economics N-471, N-375, Geography N-362, N-363, Mathematics 241, Quantitative Methods N-243, N-244, Statistics 242, Sociology N-241, Psychology N-241, N-242.

Psychology N-242 (242)

Statistical Methods in Psychology B

Prerequisite: One half credit in 'Statistics and Probability' at the CEGEP level or equivalent. A course in the fundamentals of statistical inference for psychology. (6 credits)

NOTE: Only 6 credits will be given from: Economics N-375, N-471, Geography N-362, N-363, Mathematics 241, Quantitative Methods N-243, N-244, Statistics 242, Sociology N-241, Psychology N-241, N-242.

Psychology N-271 (271)

Experimental Psychology 1A

Prerequisite: Psychology N-211 or 011 or CEGEP Psychology 101 and 201. An examination of experimental method in psychology with an introduction to statistical techniques (primarily descriptive statistics) and laboratory experience in methodology appropriate to all areas of psychology. Lectures and laboratory. (6 credits)

NOTE: Students who have credits for Psychology 273 may not take this course for credits.

Psychology N-273 (273)

Experimental Psychology 1B

Prerequisites: Psychology N-211 or 011 or CEGEP Psychology 101 and 201; Psychology N-241 or N-242 previously or concurrently and permission of the Department. An examination of experimental method in psychology, with laboratory experience in techniques appropriate to important problem areas. Lectures and laboratory. (6 credits)

NOTE: Students who have credits for Psychology 271 may not take this course for credits.

Psychology N-302 (436)

Selected Problems in Development A

Prerequisite: Second year standing. This course will deal with a selected problem in development to be announced each year. The course will be designed to allow a student to explore a problem in considerable depth starting from first principles. Possible topics are: perception of spoken and written language; developmental language disability; learning in infancy and early childhood; critical periods in early development. (3 credits)

Psychology N-303 (435)

Selected Problems in Development B

Prerequisite: Second year standing. This course will deal with a selected problem in development designed to allow the student to explore a problem in considerable depths starting from first principles. Possible topics are: perception of spoken and written language; developmental language disability; learning in infancy and early childhood; critical periods in early development. (3 credits)

*Psychology N-304 (440)***Selected Problems in Social Psychology A**

Prerequisite: Second year standing. This course will deal with a selected problem in social psychology to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: socialization of the child; social motives; interpersonal attraction; values, beliefs and attitude change; prescriptions for future man. (3 credits)

NOTE: Students who have credits for Psychology 441 or N-442 may not take this course for credits.

*Psychology N-305 (441)***Selected Problems in Social Psychology B**

Prerequisite: Second year standing. This course will deal with a selected problem in social psychology to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: socialization of the child; social motives; interpersonal attraction; values, beliefs and attitude change; prescriptions for future man. (3 credits)

NOTE: Students who have credits for Psychology 441 or N-442 may not take this course for credits.

*Psychology N-375 (275)***Directed Study and Research on a Selected Topic**

Prerequisite: Psychology N-271 or N-273, and written permission from the Department Chairman and from the supervisor of the research. Under the supervision of a member of the Psychology Department, the student is to carry out and report in writing an independent research project. The area of study must be decided upon through consultation with a faculty member prior to registration. No lectures; consultation and laboratory only. (3 credits)

NOTE: Students who have credits for Psychology N-275 may not take this course for credits.

*Psychology N-383***Sexual Differentiation**

Prerequisites: Psychology N-211 and second year standing. This course will examine the physiological, genetic and social factors that determine sex identity and will consider how sex identity influences life patterns. The effects of these factors on social, motivational and cognitive development and adjustment will be studied. (6 credits)

*Psychology N-402 (450)***Selected Problems in the Application of Psychology A**

Prerequisite: Third year standing. This course will deal with a selected problem in the application of psychology to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: personnel selection technique; rehabilitation, psychological foundations; criminal behaviour; behaviour disorders; sexual differentiation; drugs and behaviour. (3 credits)

*Psychology N-403 (449)***Selected Problems in the Application of Psychology B**

Prerequisite: Third year standing. This course will deal with a selected problem in the application of psychology to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: personnel selection technique; rehabilitation, psychological foundations; criminal behaviour; behaviour disorders; sexual differentiation; drugs and behaviour. (3 credits)

*Psychology N-404 (404)***Selected Problems in Psychology A**

Prerequisite: Third year standing. This course will deal with a selected problem in psychology to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. The particular topic discussed will vary from year to year. (3 credits)

*Psychology N-405 (405)***Selected Problems in Psychology B**

Prerequisite: Third year standing. This course will deal with a selected problem in psychology to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. The particular topic discussed will vary from year to year. (3 credits)

*Psychology N-412 (412)***Modern Psychology in Historical Perspective**

Prerequisite: Psychology N-211 or 011 or CEGEP Psychology 101 and 201. This course consists of an outline of the history of psychology from early times up to the recent past. The work includes the ancient and medieval background of psychology; the early contributions from the fields of physics and physiology; psychophysics; and historical background of the

various schools of psychological thought from the late nineteenth century to the present day. (6 credits)

Psychology N-413 (413)

Contemporary Problems in Psychology

Prerequisite: Open to third year honours students or by permission of the Department. An intensive treatment of current major problem areas in psychology. (6 credits)

Psychology N-421 (421)

Learning

Prerequisite: Psychology N-271 or N-273. A study of empirical findings and theoretical issues in the fields of animal and human learning. Topics covered include conditioning, discrimination learning, transfer, verbal learning, and classic and contemporary theoretical issues. (6 credits)

Psychology N-422 (422)

Motivation

Prerequisite: Psychology N-271 or N-273. Causal analysis of (for example) sleep, hunger, pain, sex, conflict, self-actualization, territoriality, aggression, population-density-dependent behaviour, cooperation and competition. Theories and myths vs. empirical data from physiological, behavioural, and politico-socio-economic studies, both animal and human. (6 credits)

Psychology N-428 (427)

Measurement in Psychology

Prerequisite: Psychology N-271 or N-273. A consideration of the general problems of measurement in psychology, including instrumentation and scaling procedures for measurement of psychological and physiological processes in the areas of sensation and perception, learning, social psychology and the psychology of individual differences. The use of various psychometric techniques in measurement of achievement, aptitude and personality will be appraised and questions of reliability and validity of tests will be discussed. (6 credits)

Psychology N-432 (432)

Perception

Prerequisite: Psychology N-271 or N-273. The physiological bases of sensation and perception and their relation to the basic psychological phenomena encountered in vision, audition, and the other senses will be studied. Phenomena such as pattern perception and the perception of distance and movement will be analyzed. The

effects of learning, motivation, and social factors upon perceptual processing will also be examined. (6 credits)

NOTE: Students who have credits for Psychology 431 may not take this course for credits.

Psychology N-434 (434)

Cognitive Processes

Prerequisite: Psychology N-271 or N-273. An investigation of the complex processes intervening between the stimulus and the response. Topics discussed will include cognitive and language development, psycholinguistics, organization and memory, problem-solving, concept formation, creativity, and cognitive and language disability. (6 credits)

NOTE: Students who have credits for Psychology 433 or 431 after 1968-69 may not take this course for credits.

Psychology N-438 (438)

Developmental Psychology

Prerequisite: Psychology N-271 or N-273. An experimental and comparative approach to human development from conception to old age, with emphasis on the period from birth to adolescence. Topics discussed will include language, social behaviour, intelligence, learning and perception. (6 credits)

NOTE: Students who have credits for Psychology 231 or 437 may not take this course for credits.

Psychology N-442 (442)

Social Psychology

Prerequisite: Psychology N-271 or N-273. A study of social factors in the behaviour and attitudes of the individual and of groups, including a survey of the psychology of bias, prejudice, stereotypes, propaganda, opinion, individual and group morale, group dynamics and sociometry. (6 credits)

NOTE: Students who have credits for Psychology 441 or Sociology N-420 may not take this course for credits.

Psychology N-452 (452)

Personality

Prerequisite: Psychology N-271 or N-273. The course surveys the various theories of personality and relationships between personality and behaviour. Individual differences in personality will be studied along with related factors such as age, sex, education, genetic and other physical factors, socio-economic level and other cultural factors. A brief survey and

review of basic statistical concepts will be included along with a short introduction to personality measurement. (6 credits)

NOTE: Students who have credits for Psychology 451 may not take this course for credits.

Psychology N-454 (454)

Behaviour Disorders

Prerequisite: Psychology N-271 or N-273. A study of the etiology and description of behaviour and psychological disorders, including the psychoneuroses, psychoses and psychosomatic conditions. (6 credits)

Psychology N-461 (461)

Physiological Psychology

Prerequisites: Psychology N-211 or 011 or CEGEP Psychology 101 and 210 or 111; and Psychology N-271 or N-273 or one full course in Physiology or General Biology at the CEGEP level or equivalent. This course attempts to relate neurophysiology to such psychological problems as learning, attention, and emotion. The topics treated include excitation and conduction in the neuron; synaptic mechanism; sensory and motor systems, the internal environment; the electrical activity of the brain. Emphasis is given to brain damage studies in animals and man, and the problem of localization of function in the nervous system. (6 credits)

Psychology N-462 (462)

Comparative Psychology

Prerequisites: Psychology 211: Psychology N-271 or N-273 or one full credit in Biology at the CEGEP level or equivalent. A study of behaviour from a comparative viewpoint. Topics of study will include evolutionary changes in brain and behaviour, behaviour genetics and specific aspects of behaviour such as sensory capacities, motivation, emotion, learning, cognitive abilities and social behaviour. (6 credits)

Psychology N-471 (471)

Experimental Psychology II

Prerequisites: Psychology N-241 or N-242; N-271 or N-273 and permission of the Department. This course provides experience in the planning, conduct, analysis, and reporting of independent research in the major areas of psychology. Lectures and laboratory. (6 credits)

Psychology N-472 (472)

Advanced Experimental Problems

Prerequisite: Third year honours students or permission of the Department. Supervised

investigation of special problems. Each student will be required to conduct an experimental study and to submit an appropriate research paper of the study, under the supervision of the Department. Lectures and laboratory. (6 credits)

Psychology N-481 (481)

Psychology of Work Organizations

Prerequisites: Psychology N-271 or N-273; and permission of the Department. The scientific study of human behaviour as it occurs in business and industry; an examination of the roles of workers, managers, and consumers, and studies of the social psychology of organizations. (6 credits)

NOTE: Students who have credits for Psychology 221 may not take this course for credits.

Psychology N-482 (482)

Psychology of Human Learning in the Classroom

Prerequisites: Psychology N-211 or 011 or CEGEP Psychology 101 and 201; Psychology N-271 or N-273 or enrolment in the Art Education major; and permission of the Department. A systematic examination of psychological principles and research reports which contribute to an understanding of human learning in the school. (6 credits)

NOTE: Students who have credits for Psychology 223 may not take this course for credits.

Psychology N-491 (491)

Special Seminar on Selected Topics in Psychology

Prerequisite: Third year honours and major students with permission of the Department. Subject matter will differ from term to term and from year to year to take advantage of the special interests of the seminar leader. The course will provide opportunities to senior students for discussion and advanced study. (3 credits)

NOTE: With the permission of the Department a student may take this course twice for credits, provided that a different subject is dealt with the second time. A student repeating Psychology N-491 for credits will register under Psychology N-493.

Psychology N-492 (492)

Special Seminar on Selected Topics in Psychology

Prerequisite: Third year honours and major students with permission of the Department. Subject matter will differ from term to term and from year to year to take advantage of the special interests of the seminar leader. The course will provide opportunities to senior

students for discussion and advanced study.
(3 credits)

NOTE: With the permission of the Department a student may take this course twice for credits, provided that a different subject is dealt with the second time. A student repeating Psychology N-492 for credits will register under Psychology N-494.

Psychology N-494 (494)

Special Seminar on Selected Topics in Psychology.

Prerequisite: Permission of the Department. A student repeating Psychology N-491 for a second

time registers for credits under Psychology N-493. (3 credits)

Psychology N-494

Special Seminar on selected Topics in Psychology

Prerequisite: Permission of the Department. A student repeating Psychology N-492 for a second time registers for credits under Psychology N-494. (3 credits)

Sociology and Anthropology

*Associate Professor of Sociology,
and Chairman of the Department*
Joseph C. Mouledoux

Sociology

Professors

Ian L. Campbell
Szymon Chodak
Kurt Jonassohn
Hubert Guindon
Harold H. Potter
Solomon J. Rawin

Associate Professors

H. Taylor Buckner
John P. Drysdale
John D. Jackson
Joseph Smucker

Assistant Professors

Shirley I. Ciffin
William Reimer
Anthony Synnott

Lecturers

Francine Bernard
Nellie Burman
A. Vivienne Walters

Anthropology

Professor

Charles S. Brant

Associate Professor

Anatole N. Klein

Lecturer

Pieter J. de Vries

Students are responsible for satisfying their particular degree requirements, hence the following sequence *must* be read in conjunction with pages 76 - 101.

Sociology and Anthropology: major

The following courses, in an approved sequence, constitute a major:

6 credits chosen from Area I.
6 credits chosen from Area II.
6 credits chosen from Area III.
6 credits chosen from Area IV.
6 additional credits chosen from either Area I, Area II, Area III, or Area IV.

12 credits from outside the Department chosen in consultation with the Major Advisor.

Sociology and Anthropology: joint major component

The following courses constitute the joint major component:

6 credits chosen from Area I.
6 credits chosen from Area II.
6 credits chosen from Area III.
6 credits chosen from Area IV.
6 additional credits chosen from either Area I, Area II, Area III, or Area IV.

Sociology: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

Sociology N-241*, N-411 and N-481.
6 credits from Area II.
6 credits from Area III.
6 credits from Area IV.
6 additional credits within the Department.

18 credits outside the Department chosen in consultation with the honours representative. (All 18 credits must be within the same Department.)

Sociology and Philosophy: honours

The following courses constitute an honours programme provided the student maintains the required academic standing:

Pattern A (Epistemology and Methodology)

Sociology N-210 or other equivalent.

Sociology N-241, N-411, N-481.

6 credits chosen from Sociology N-420, N-430, N-431.

Sociology N-422 or N-496.

6 credits chosen from Philosophy N-210, N-211, N-221 or the Collegial or other equivalent.

Philosophy N-380.

Philosophy N-221 or N-321.

Philosophy N-369 or N-405.

3 credits chosen from Philosophy N-372*, N-374*, N-376*.

6 credits chosen from Philosophy N-321, N-369, N-396*, N-401, N-405, N-421, N-493.

Pattern B (Man in Society)

Sociology N-210 or the Collegial or other equivalent.

Anthropology N-211 or the Collegial or other equivalent.

Sociology N-420, N-481.

6 credits chosen from Sociology N-421, N-422, Anthropology N-423.

6 credits chosen from Sociology N-442, N-443, N-444*, N-445*, N-446, N-447, N-454.

Philosophy N-210 or N-211.

Philosophy N-380.

6 credits chosen from Philosophy N-221, N-321, N-369.

6 credits chosen from Philosophy N-372*, N-374*, N-376*, N-378*.

Any 12 additional credits in Philosophy.

Sociology and Religion: honours

A. Anthropology N-211, Religion N-213,

Sociology N-210.

6 credits chosen from Religion N-301*, N-302, N-363.

B. 12 credits chosen from Religion N-311, N-312, N-326*, N-327*, N-328*, N-461.

12 credits chosen from: Religion N-491;

Sociology N-430 or N-431; N-481.

6 credits chosen from: Anthropology N-423;

Sociology N-424, N-443, N-446, N-494.

6 additional credits in Sociology chosen in consultation with the student's honours advisor.

It is strongly recommended that an honours student in Religion and Sociology planning to do graduate work acquire a good reading knowledge of French, German, Greek, Hebrew or Latin.

Area I - Basic Methods, Epistemology and Methodology

Sociology N-241	Statistics
Sociology N-410	Survey Research Methods
Sociology N-411	Research Techniques
Sociology N-412	Fieldwork Research
Anthropology N-413	Problems in Anthropological Method
Anthropology N-494 - N-498	Special Seminars
Sociology N-494 - N-499	Special Seminars

Area II - Social and Symbolic Nature of Man

Sociology N-420	Self and Society
Sociology N-421	Sociology of Deviance
Sociology N-422	Sociology of Knowledge
Sociology N-424	Sociology of Religion
Sociology N-433	Collective Behaviour and Social Movements
Anthropology N-423	Cultural Anthropology
Anthropology N-425	Religious Systems
Anthropology N-494 - N-498	Special Seminars
Sociology N-494 - N-499	Special Seminars

Area III - Theory

Sociology N-430	Classical Sociological Theory
Sociology N-431	Contemporary Sociological Theory
Sociology N-432	Formal Organizations
Sociology N-433	Selected Problems in Sociological Theory
Sociology N-446	Social Class and Structured Inequality in Modern Society
Sociology N-455	Comparative Social Systems
Anthropology N-434	History & Theory of Anthropology
Anthropology N-494 - N-498	Special Seminars
Sociology N-494 - N-499	Special Seminars

Area IV - Special Studies

Sociology N-440	Community Studies
Sociology N-441	Sociology of Urban Regions
Sociology N-422	The Family
Sociology N-433	Collective Behaviour & Social Movements
Sociology N-444	Intergroup Relations
Sociology N-445	Intergroup Relations in Canada
Sociology N-447	Political Sociology
Sociology N-448	Population & Society
Sociology N-449	Area Studies in Demography
Sociology N-450	Seminar in Urban and Metropolitan Studies
Sociology N-452	Law and Society
Sociology N-454	Industrial Sociology
Sociology N-456	History and Sociology
Sociology N-470	Canadian Social Structure
Sociology N-471	Quebec Society
Sociology N-472	Social Structure of the Soviet Union and Eastern Europe
Sociology N-481	Honours Seminar
Anthropology N-458	Peasantry: The Culture of Peasant Societies
Anthropology N-460	Social and Political Anthropology
Anthropology N-461	State Formation
Anthropology N-462	Native Societies of North America
Anthropology N-463	Cultures of India and China
Anthropology N-494 - N-498	Special Seminars
Sociology N-494 - N-499	Special Seminars

NOTE: Not all courses, as listed above, will be given each year. Keep this in mind especially with respect to the following courses:

Sociology N-422	Sociology of Knowledge
Sociology N-430	History of Sociological Theory
Sociology N-447	Political Sociology
Sociology N-448	Demography
Sociology N-455	Comparative Social Systems
Sociology N-474	Social Structure of the Soviet Union & Eastern Europe

Sociology N-210 (212)**Introduction to Sociology**

This course analyses social problems in modern society and introduces the student to the basic concepts and most important approaches in sociology. (6 credits)

NOTE: A student who has credits for Sociology 011 or 211 or 111 may not take this course for credits.

Sociology N-241 (241)**Statistics**

Prerequisites: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210; and high school Algebra; and 6 credits in Mathematics. An introductory course in descriptive and analytical statistical methods for students of sociology. Lectures and laboratory. (6 credits)

NOTE: Only 6 credits will be given from:

Economics N-471, N-375, Geography N-362, N-363, Mathematics 241, Quantitative Methods 243, 244, Statistics 242, Sociology N-241, Psychology N-241, N-242.

Sociology N-410 (or N-413)**Survey Research Methods**

Prerequisites: Sociology N-241 or equivalent; Sociology N-210 or 211 or 212 or equivalent; third year standing. The methods of conducting survey research will be examined: research design, sampling methods, design and pre-testing of instruments, methods of data collection, logic of analysis, techniques of multivariate analysis, and report writing. Students will be required to participate in the execution of an actual survey research project. (6 credits)

Sociology N-411 (411)**Research Techniques**

Prerequisites: One course in Sociology at CEGEP level or Sociology 111 or 011 or 211 or 212, or N-210 and N-241. It is strongly recommended that the student take Sociology N-241 prior to, or concurrently with Sociology N-411. This course deals with the design of research, the methods of data collection, and the techniques of analysis. A research project will be designed and carried out by the students. The emphasis will be on training for the critical reading of published research materials, as well as on training for graduate study. Lectures and laboratory. (6 credits)

Sociology N-412 (402)**Fieldwork Research**

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Methods of fieldwork research in Sociology will be explored and examined in detail. Students will be expected to formulate a research problem appropriate to fieldwork methods. Under the supervision of the instructor they will then carry out the actual research singly or in teams. (6 credits)

NOTE: Students who have credits for Sociology N-495 or 487 may not take this course for credits.

Sociology N-420 (425)**Self and Society**

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. A consideration of basic concepts and of the most important theories in social psychology. Motivation is viewed in terms of the interplay between actors and social structures, and this approach is illustrated by reference to selected empirical studies. (6 credits)

NOTE: Students who have credits for Psychology N-442 (442) may not take this course for credits.

Sociology N-421 (433)**Sociology of Deviance**

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. The nature of deviant or marginal behaviour: legal and non-legal forms. Socialization to deviance; institutionalization of deviance; social control of deviance, structure and culture of deviance. Theories of deviant behaviour and their sociological, legal and practical implications. (6 credits)

Sociology N-422 (495)**Sociology of Knowledge**

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. An examination of the interaction between social structures and meaning and belief systems. Of special concern will be the social influences bearing upon claims to truth and validity and upon definitions of social morality. (6 credits)

Sociology N-424 (432)**Sociology of Religion**

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. The major focus is on the institutionalization of religion. The interpretation

of religious phenomena is sociological and not philosophical or theological, and stays within the tradition of historical and phenomenological studies of religion (Otto, Van der Leeuw, Eliade). Emphasis is placed on the approaches of sociology of knowledge and comparative sociology (Weber, Durkheim, Berger, Luckmann). (6 credits)

Sociology N-430 (423)**Classical Sociological Theory**

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Introduction to major theorists whose main works will be read and discussed. Emphasis will be on the classics to 1920, especially Comte, Spencer, Marx, Ward, Sumner, Mead, M. Weber, Simmel, Durkheim and Pareto. Lectures and seminar. (6 credits)

Sociology N-431 (424)**Contemporary Sociological Theory**

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Analysis of the major trends and issues in twentieth century European and North American sociological theory. Emphasis is placed on issues and writings of contemporary significance. Attention is given to the major theoretical orientations, including neo-positivism, functionalism, neo-Marxism, symbolic interactionism, phenomenology and their respective critics. (6 credits)

Sociology N-432 (428)**Formal Organizations**

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. A study of different methods of coordinating human action in social group operations under different environmental conditions. Particular focus is on role systems connected with multi-group structures. The course begins with an historical overview of the field, examines the relationships between formal organizations and their environment (e.g. culture, market structure) and ends with a comparative study of diverse and changing structures in some institutional areas of organization. (6 credits)

Sociology N-433 (437)**Selected Problems in Sociological Theory**

Prerequisites: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210 and permission of the Department. Additional prerequisites may be added according to subject matter. This course is designed to

provide students with an opportunity to study selected theoretical problems and/or theorists. Subject matter will vary according to the interests of students and faculty. (6 credits)

Sociology N-440 (404)

Community Studies

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Based upon selected community studies, this course will focus upon an interpretation of the findings of these studies within the larger context of urbanization and industrialization with special emphasis given to the methodology of community studies. (3 credits)

Sociology N-441 (441)

Sociology of Urban Regions

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. The physical and social characteristics of urban communities are studied with special attention paid to ecological patterns and ecological process. Forms of adjustment, co-operation and control are included in these studies. (3 credits)

Sociology N-442 (442)

The Family

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. The course will deal with the following basic topics: mate selection, the social function of families, conjugal roles, social formation of the young, marriage across racial, religious and other social boundaries, and types of family structure. Other topics are added as time and interest permit. (6 credits)

Sociology N-443 (422)

Collective Behaviour and Social Movements

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Characteristics of collective behaviour, its origin, development, and relationship to formal social structures. Methods of study and theories to explain the observed processes. The nature and function of social movements; their life histories and their relationship to the larger society. Specific case studies of religious, racial, and political movements. (6 credits)

Sociology N-444 (447)

Intergroup Relations

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. This course is concerned with the sociology of macro-group relations. The emphasis

is on the social definition of race. The significance of colour, language, cultural and ethnic differences is examined within a context of stratification and power differentials. Attention is devoted to Caribbean societies, the U.S.A., South Africa and Rhodesia. The decolonization process, the functions and dysfunctions of intergroup conflict, and methods of reducing and increasing tension are discussed. (3 credits)

Sociology N-445 (443)

Intergroup Relations in Canada

Prerequisites: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210, Sociology N-444. Within the theoretical framework of intergroup relations ethnic groups in Canada will be examined. The groups will include Indians, Eskimos, Blacks, Jews, and English and French speakers. The mosaic theory of Canadian ethnic relations will be considered. (3 credits)

Sociology N-446 (444)

Social Class and Structures Inequality in Modern Society

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Systems of social differentiation are analyzed. Theories about their origins and consequences, and about degrees and types of mobility related to them, are discussed. The theories are applied to Canada and to the United States as well as to other societies. (6 credits)

Sociology N-447 (427)

Political Sociology

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. The social and normative structures of political institutions, including political parties; the relationship between political institutions and religious and economic institutions; the rise and fall of political ideologies, systems and institutions; the making and communications of policies, the rejuvenation of elites. Political attitudes and behaviour are analyzed, as well as political socialization, interest, and involvement. (6 credits)

Sociology N-448 (461)

Population and Society

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210, or an introductory course in a social science. This course consists of a brief survey of population theory and an introduction to the techniques of population analysis. It will cover the size, distribution, and composition of the

population; changes in these characteristics; the relationship between population trends and social and economic conditions, with special reference to recent trends. (3 credits)

Sociology N-449 (462)

Area Studies in Demography

Prerequisites: One course in Sociology at the CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210, Sociology N-448. Selected topics of importance in population studies will be explored in some detail. Students will be required to submit a research paper on a significant demographic problem. (3 credits)

NOTE: Students who have credits for Sociology N-453 or 462 may not take this course for credits.

Sociology N-450 (496)

Seminar in Urban and Metropolitan Studies

Prerequisites: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210, Sociology N-441. Intensive study of a few theories and selected monographs dealing with aspects of urbanization. (6 credits)

Sociology N-452 (449)

Law and Society

A study of the legal system as an institutionalized system of social control, with special emphasis on its role in times of rapid social change. Problems of definition, validation, enforcement and execution of the law will be examined in several areas of application and in relation to systems of stratification. Special attention will be given to the study of law and of legal organizations in contemporary society, as they intersect with other areas of sociological inquiry, especially social change, conflict, decision making, and the role of the legal professions. (6 credits)

Sociology N-454 (465)

Industry and Society

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Analysis of the nature of change and its consequences in advanced industrialized societies. Special attention will be directed toward corporate structures, the labour movement, the function and meaning of work, leisure and changes in social stratification and the exercise of power. (6 credits)

Sociology N-455 (497)

Comparative Social Systems

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or

N-210. Comparative analysis of concepts of social systems with a special account of conflict theory and functionalist approaches to the subject. Examination of problems of development, modernization and social change in a general theoretical framework. Comparative analysis of trends of development in the West, the Soviet Union and Eastern Europe, and the Third World Nations. (6 credits)

History-Sociology N-456 (493)

History and Sociology

Prerequisites: An introductory course in History and in Sociology, and second or third year standing. An exploration of the relationships between historical and sociological approaches to the description and analysis of social conditions and social events, paying special attention to questions of methodology and conceptualization. (6 credits)

NOTE: This course may be counted for credits in either History or Sociology.

Sociology N-457 (457)

Crime and Justice in Society

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. This course will focus on the theories and methods developed in criminology and penology since their modern development beginning with the 19th century. Sociological definitions of crime and the interplay between individual autonomy and communal controls will be analysed. (6 credits)

Sociology N-458 (458)

The Sociology of Sex Roles

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. This course will focus on sociological aspects of sex roles. Modern social trends will be analysed, with special attention to emerging egalitarian patterns and changes in the socio-economic system. (6 credits)

Sociology N-470 (406)

Canadian Social Structure

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. This course will focus on institutional patterns, with particular attention to the system of social stratification and industrial organization. Elements of differential structure, with special reference to Quebec society will be interpreted a) from the historical perspective of modernizing development, and b) within the context of the North American system. (3 credits)

NOTE: Students who have credits for Sociology N-499 or 409 or 486 may not take this course for credits.

Sociology N-471 (407)

Quebec Society

The course focuses on the following topics: the nature of traditional society and the social forces within Quebec society since the Second World War. It will examine conflicting historical views on Quebec that are relevant to contemporary issues; the consequences of the conquest; the nature of Confederation; and the nature of nationalism and the nation state. Special attention is paid to the language issue, both federally and within Quebec. (6 credits)

NOTE: Students who have credits for Sociology N-497 or 488 may not take this course for credits.

Sociology N-472

Social Structure of the Soviet Union and Eastern Europe

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. The process of modernization in Russia and Eastern Europe under the socialist order. Within this context, the socialist model will be considered as a variant of "late" modernization, against the background of the Western entrepreneurial experience. A comparative analysis of the Soviet and Yugoslav industrial organization will be approached in terms of (1) historical continuities within each system, and (2) general patterns of socialist industrialism. (3 credits)

Sociology N-481 (491)

Honours Seminar

Prerequisite: Open to honours students in their final year or by permission of the Department. Students engage in a critical study of major sociological work according to their interests. Before the end of the academic year a research paper must be completed and accepted by the Department. (6 credits)

Sociology N-494 (486)

Special Seminar A

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Additional prerequisites may be added according to subject matter. Registration by permission of the Department. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (6 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. A student repeating Sociology N-494 for credits will register under Sociology N-496.

Sociology N-495 (487)

Special Seminar B

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Additional prerequisites may be added according to subject matter. Registration by permission of the Department. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (6 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time for credits under Sociology N-499.

Sociology N-496 (408)

Special Seminar

Prerequisite: Permission of the Department. A student repeating Sociology N-494 for a second time registers for credits under Sociology N-496. (6 credits)

Sociology N-497 (488)

Special Seminar

Prerequisite: One course in Sociology at CEGEP level or Sociology 011 or 111 or 211 or N-210. Additional prerequisites may be added according to subject matter. Registration by permission of the Department. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (3 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time for credits under Sociology N-499.

Sociology N-498 (489)

Special Seminar D

Prerequisite: One course in Sociology at the CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Additional prerequisites may be added according to subject matter. Registration by permission of the Department. Subject matter will vary from year to year to take advantage of

the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (3 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time for credits under Sociology N-499.

Sociology N-499 (409)

Special Seminar

Prerequisite: Permission of the Department. A student repeating Sociology N-495, N-497, N-498 for a second time registers for credits under Sociology N-499. (3 credits)

Anthropology

Anthropology N-211 (211)

Introduction to Anthropology

This course deals with the evolution of man and his culture during prehistory, the differentiation of races, family and kinship structures in simple and complex societies, and the religious beliefs and practices of ancient and modern primitives in selected parts of the world. (6 credits)

NOTE: Only 6 credits will be given from Anthropology 011, 111, N-211 or 211 and Sociology 231.

NOTE: Students who have credits for Anthropology 011 or 111 or 211 or Sociology 231 may not take this course for credits.

Anthropology - Interdisciplinary Studies N-331 (211)

Introduction to Archaeology I

An introduction to the archaeology of the ancient civilizations of the Near East and Mediterranean. Special consideration will be given to key discoveries in such areas as Mesopotamia, Egypt, Palestine, Crete, Greece, and Italy. Problems of field methodology will also be discussed. (3 credits)

Anthropology - Interdisciplinary Studies N-332 (211)

Introduction to Archaeology II

A survey of some of the more significant archaeological discoveries of prehistoric cultures in both Old and New Worlds. The techniques of physical science in archaeology will be examined. Consideration will also be given to the development of Early Man. (3 credits)

Anthropology N-413 (441)

Problems in Anthropological Method

Prerequisites: Twelve credits in Anthropology. Selected problems in methodology chosen by the instructor for advanced work with students. (3 credits)

Anthropology N-423 (432)

Cultural Anthropology

Prerequisite: One CEGEP course in Anthropology or Anthropology 011 or 111 or 211 or N-211. Major theories of culture; survey of principal cultures types and their distribution; analysis of relations between various aspects of culture such as technology, economy, family and religion with special attention to non-industrial societies; discussion of ethnological problems. (6 credits)

Anthropology N-425 (434)

Magic, Science and Religion

Prerequisite: One course in Anthropology at CEGEP level or Anthropology 011 or 111 or 211 or Religion N-213. A comparative study of beliefs, ritual and ceremony in tribal, peasant and modern societies. Consideration of anthropological theories regarding the development and functions of supernaturalistic and naturalistic modes of thought. (6 credits)

Anthropology N-434 (451)

History of Anthropological Thought

Prerequisite: Anthropology N-211 or permission of the Department. A study of the major thinkers and schools of thought in cultural and social anthropology. (6 credits)

Anthropology N-458 (435)

Peasantry: The Culture of Peasant Societies

Prerequisite: One course in Anthropology at the CEGEP level or Anthropology 011 or 111 or 211 or N-211 or Economics N-440. Analysis of social, economic and political organization of selected peasant societies in both New and Old World environments. Integration with selected problems of Ideological, religious and artistic development within these cultures. (3 credits)

Anthropology N-460 (437)

Social and Political Anthropology

Prerequisite: One course in Anthropology or Sociology at CEGEP level or Anthropology N-211 or Sociology N-210. A survey of important problems of kinship, economic and political structure from selected tribal and peasant cultures. Stress will be placed on the empirical findings of field and library research. The

second half of the course will deal with problems of political organization and leadership in the new nations of Africa and Asia. (6 credits).

Anthropology N-461 (461)

State Formation

Prerequisites: 12 credits in Anthropology. A study of the formation of the earliest state societies in the Near East, East Asia, Middle and South America. The course will conclude with an analysis of 'secondary' states resulting from European intrusion into South Asia and Africa. (3 credits)

Anthropology N-462 (411)

Native Societies and Cultures of North America

Prerequisite: One course in Anthropology or Sociology at CEGEP level or Anthropology N-211 or Sociology N-210. The principles of general anthropology applied in a survey course on the American Indians. The advent of man to America; early cultural developments and the differentiation of the various groups or tribes; aboriginal culture areas of North America, including Eskimo; brief survey of Indian civilizations; present-day problems of Canadian and U.S. Indians and Eskimos. (6 credits)

NOTE: Students who have credits for Sociology 232 may not take this course for credits.

Anthropology N-463 (403)

Cultures of India and China

Prerequisite: One course in Anthropology or Sociology at CEGEP level or Anthropology N-211 or Sociology N-210. This course will deal with the development of these cultures from their earliest manifestation to the present. Emphasis will be upon the interrelations of technological, social structural and ideological aspects, with considerable attention to recent and prospective changes. (6 credits)

NOTE: Students who have credits for Anthropology N-494 in 1971-72 may not take this course for credits.

Anthropology N-494 (486)

Special Seminar

Prerequisites: Six credits in Anthropology or permission of the Department. Additional prerequisites may be added according to subject matter. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (6 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time for credits under Anthropology N-495.

Anthropology N-495 (487)

Special Seminar

Prerequisite: Permission of the Department. Additional prerequisites may be added according to subject matter. A student repeating Anthropology N-494 for a second time registers for credits under Anthropology N-495. (6 credits)

Anthropology N-497 (488)

Special Seminar

Prerequisites: Twelve credits in Anthropology or permission of the Department. Additional prerequisites may be added according to subject matter. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (3 credits)

NOTE: With the permission of the Department, a student may take this course twice for credits, provided that a different subject is dealt with the second time. He will register the second time for credits under Anthropology N-498.

Anthropology N-498 (489)

Special Seminar

Prerequisite: Permission of the Department. Additional prerequisites may be added according to subject matter. A student repeating Anthropology N-497 for a second time registers for credits under Anthropology N-498. (3 credits)

Faculty of Science

Faculty of Science

Dean

Roger H. Verschingel

Assistant Dean

Frederick Bedford

Curriculum for the Degree of Bachelor of Science Admission Requirements

General Admission requirements are listed on page 38

Specific requirements are those contained in the CEGEP pre-Science profile or the equivalent in university collegial programmes, that is:

Sir George Williams University		CEGEP
Biology	001	301
Chemistry	001	101
	002	201
Mathematics	002	101
	003	103
	004	105
	005	203
Physics	001	101
	002	201
	003	301

Requirements for entry into the Psychology (B.Sc.) include the following CEGEP courses: Mathematics 101, 103, 203; Biology 921 or 301; Psychology 101, 201.

The majority of students entering the first year of the Science undergraduate programme will be graduates of a provincial CEGEP or equivalent. Consequently, prerequisites, where listed, are given CEGEP numbers as in the table above. Biology 002 is the equivalent of CEGEP Biology 401 and Geology 011, 013 or 014 is equivalent to CEGEP Geology 901.

NOTE: CEGEP Physics 102, 202 and 302 may, with approval, be substituted for Physics 101, 201 and 301 respectively.

Degree Requirements

Students preparing for the degree of Bachelor of Science will take the minimum of 90 credits. Each credit represents a minimum of 45 hours spread across the total student activity including lectures, conferences, laboratories, studio or practice periods, examinations and personal work. Sixty (60) of these must be taken from the courses listed as courses offered in the Faculty

of Science in the university calendar except where otherwise noted.

Students are required to indicate on their application forms the choice of a general, major, major-minor, joint major or honours programme.

A major programme will consist of a minimum of 42 specified credits and a maximum of 60 specified credits.

An honours programme will consist of a minimum of 60 specified credits.

Joint Major Programmes

A joint major is made up of two approved sequences of 30 credits in two specific fields. The term joint major implies that a student has followed, within the requirements for the degree, a planned programme of study in two specialized fields, with a lower degree of concentration in either field than given in a major programme.

Students wishing to follow a joint major within the Faculty of Science must obtain approval of the sequence of 30 credits from each department concerned.

In order to meet the needs of individual students interdisciplinary joint majors between faculties may be arranged with those departments offering a joint major component (*see pg. 85-87 of this calendar*).

Major Programmes

A major is an approved sequence of courses in a specific field which may include certain approved courses in other closely related subjects. The term major as used by Sir George Williams University implies that a student has followed, within the requirements for the degree, a planned programme in a specialized field.

Students registering upon entry in a joint major or major programme must, in the course of their first year, establish an approved sequence of courses for their degree programme through consultation with the chairman of the department concerned or his representative.

Major-Minor Programmes

A major-minor programme is made up of an approved sequence of courses as described in the requirements of a major programme together with a minimum of 24 credits in an approved sequence in another field of study. The term major-minor implies that a student has followed, within the requirements for the degree, a planned programme in a specialized field and a lower degree of concentration in another field.

Majors Advisers

Biological Sciences

Ernst Bleichert
Don Peets
Sylvia Ruby

Chemistry

Thomas Adley

Analytical Chemistry

James G. Dick

Biochemistry

George L. Campbell

Geology

Andre Deland
Henry de Romer

Mathematics

John Senez

Physics

David Charlton

Requirements for Majors

NOTE: The Corporation of Professional Chemists of Quebec has fully accredited the curricula of Majors in Chemistry, Biochemistry and Analytical Chemistry. Upon satisfactory completion of a Major programme a graduate is eligible for membership in the Corporation.

Analytical Chemistry

The following courses, in an approved sequence, constitute a major in Analytical Chemistry:

First Year: Chemistry N-211*, N-213*, N-221, N-231, N-241. Computer Science N-211* and N-221*.

NOTE: Courses marked with an asterisk must be completed in one term.

Second Year: Chemistry N-311*, N-323*, N-331, N-341, N-353. Computer Science N-301* and N-310*.

Third Year: Chemistry N-452*, N-453*, N-491, Computer Science N-340*.

NOTE: Students who major in Analytical Chemistry are exempted from the corequisite Computer Science N-220 for N-310*.*

Biochemistry

The following courses, in an approved sequence, constitute a major in Biochemistry:

First Year: Chemistry N-211*, N-213*, N-231, N-241 and 6 additional credits in Biological Sciences in consultation with the Department.

Second Year: Chemistry N-331, N-341, N-351, N-371 and 6 additional credits in Biological Sciences in consultation with the Department.

Third Year: Chemistry N-471, or N-472. Physics N-480*.

Six additional credits in Chemistry.

Six additional credits in Biological Sciences, Biophysics or Psychology listed under Science Faculty, in consultation with the Department.

Biological Sciences

The following courses, in an approved sequence, constitute a major in Biological Sciences:

First Year: Biology N-202* (Students entering university with the CEGEP equivalent of Biology N-202* will be granted an exemption.) Biology N-203*, N-204*, N-213*, N-224*; Chemistry N-231.

Second & Third Years: Biology N-343*, N-380*, N-433*.

One of: Chemistry N-371 or Botany N-422.

One of: Biology N-253* or Zoology N-212* or Biology N-360*.

One of: Botany N-231* or Zoology N-215*.

One of: Botany N-320* and Botany N-360* or Zoology N-320.

In addition, 12 or 15 credits from the Department of Biological Sciences or in another related field chosen in consultation with the Department. (The 15 credits are required of those students who have been exempted from Biology N-202*.)

NOTE: Students who choose Chemistry N-371 as an elective are reminded that Chemistry N-231 and 12 credits from the Department of Biological Sciences are prerequisites.

Chemistry

The following courses, in an approved sequence, constitute a major in Chemistry:

First Year: Chemistry N-211*, N-213*, N-221, N-231, N-241.

Second Year: Chemistry N-311*, N-331, N-341, N-353.

Third Year: Chemistry N-323*, Minimum of 3 credits from N-441, N-442*, N-443*, N-452*, N-461. Six additional credits from the 400-level series courses.

NOTE: Students who choose Chemistry N-461 are reminded that Mathematics N-270 is a prerequisite.

General Science

Sixty (60) credits taken from the courses listed in the Faculty of Science constitute a major in General Science.

Geology

The following courses, in an approved sequence, constitute a major in Geology:

First Year: Geology N-213*, N-214*, N-231*, N-232* and Chemistry N-241.

Second Year: Geology N-322*, N-323*, N-342, N-348*, N-349*, N-352*, N-353*.

Third Year: Geology N-460 and 6 additional credits in Geology.

It is advisable that geology students do at least one summer of field work with government geological field parties or with private exploration companies.

Geology (Minor in Ecology)

The following courses, in an approved sequence, constitute a major in Geology with a minor in Ecology:

The courses listed under the major in Geology together with the following:

Biology N-203*, N-204*, N-213*, and 15 additional credits chosen in the area of Ecology in consultation with the Department of Biological Sciences.

Mathematics

The following courses, in an approved sequence, constitute a major in Mathematics:

Mathematics N-241, N-261, N-271*, N-281, N-291*, N-361, N-391* and 15 additional credits in Mathematics, or the equivalent, approved by the Department.

NOTE: Students who major in Mathematics must register by November 1 of each year with the Department of Mathematics.

Applied Mathematics (Optimization)

The following courses, in an approved sequence, constitute a major in Applied Mathematics (Optimization):

Mathematics N-241, N-261, N-271*, N-281, N-291*, N-312*, N-331, N-351*, N-431 and 6 additional credits in Mathematics or related fields approved by the Department.

NOTE: Students who major in Applied Mathematics must register by November 1 of each year with the Department of Mathematics.

Statistics

The following courses, in an approved sequence, constitute a major in Statistics:

Mathematics N-241, N-261, N-271*, N-281, N-291*, N-341*, N-342*, N-343*, N-351*, N-352* and 9 additional credits in Mathematics or related fields approved by the Department.

NOTE: Students who major in Statistics must register by November 1 of each year with the Department of Mathematics.

Experimental Physics

The following courses, in an approved sequence, constitute a major in Experimental Physics:

First Year: Physics N-241, N-251, N-291*, N-292*, Mathematics N-261, N-270.

Second Year: Physics N-352*, N-355*, N-364*, N-392*, N-394*, N-395*.

Third Year: Physics N-433*, N-435*, N-465*, N-493*, N-495*, N-496*.

Honours Committee

Associate Professor Roger B. Angel, Chairman
 Assistant Professor E. Brian Markland
 Assistant Professor Peter L. Miles
 Associate Professor Ronald Westbury
 Professor Joseph P. Zweig, Past Chairman
 Mona Osborne, Secretary

Departmental Advisors

<i>Biological Sciences</i>	Hildegard Enesco
<i>Chemistry</i>	Thomas I. Adley
<i>Mathematics</i>	Norman Smith
<i>Physics</i>	David E. Charlton

Requirements for Honours

Biological Sciences

The following courses constitute an honours programme in Biological Sciences, provided the student maintains the required academic standing:

First Year: Biology N-202* (Students entering university with the CEGEP equivalent of Biology N-202* will be granted an exemption.)
 Biology N-203*, N-204*, N-213*, N-224*;
 Chemistry N-231.

Second & Third Years: Biology N-343*, N-380*, N-433*, N-490.

One of: Chemistry N-371 or Botany N-422.

One of: Biology N-253* or Zoology N-212* or Biology N-360*.

One of: Botany N-231* or Zoology N-215*

One of: Botany N-320* and Botany N-360* or Zoology N-320.

In addition, 24 or 27 credits from the field of Biological Sciences or related fields chosen in consultation with the Department of Biological Sciences. (The 27 credits are required of those students who have been exempted from Biology N-202*.)

NOTE: Students who choose Chemistry N-371 as an elective are reminded that Chemistry N-231 and 12 credits from the Department of Biological Sciences are prerequisites.

Chemistry

The following courses constitute an honours programme in Chemistry, provided the student maintains the required academic standing:

First Year: Chemistry N-211*, N-213*, N-221, N-231, N-241; Mathematics N-270.

Second Year: Chemistry N-311*, N-321, N-331, N-341, N-353.

Third Year: Chemistry N-431, N-441, N-451, N-461, N-491.

NOTE: The Corporation of Professional Chemists of Quebec has fully accredited the curriculum of Honours in Chemistry. Upon satisfactory completion of an Honours programme a graduate is eligible for membership in the Corporation.

Mathematics

The following courses constitute an honours programme in Mathematics, provided the student maintains the required academic standing:

First Year: Mathematics N-241, N-261, N-271*, N-281, N-291*.

Second Year: Mathematics N-361, N-366*, N-371*, N-381*, N-391*.

Third Year: Mathematics N-461, N-466*, N-467*, N-491*, N-492*.

Twelve (12) credits in second and third years chosen from among: Mathematics N-311*, N-312*, N-321*, N-322*, N-331, N-351*, N-392*, N-431, N-432*, N-451*, N-471*, N-475*; courses in related fields with prior Departmental approval.

NOTE: Students with a strong interest in Applied Mathematics who take Mathematics N-312, N-331, N-351* as their options may replace Mathematics N-467*, N-491*, N-492* with Mathematics N-431, N-432*.*

Statistics

The following courses constitute an honours programme in Statistics, provided the student maintains the required academic standing:

First Year: Mathematics N-241, N-261, N-271*, N-281, N-291*.

Second Year: Mathematics N-351*, N-352*, N-361, N-366*, N-381*, N-391*.

Third Year: Mathematics N-371*, N-451*, N-452*, N-461, N-466*.

Twelve credits in second and third years chosen from among: Mathematics N-311*, N-312*, N-321*, N-331, N-341*, N-342*, N-343*, N-431, N-441*, N-467*, N-471*, N-491*, N-492*; courses in related fields with prior Departmental approval.

NOTE: Students with a strong interest in Applied Mathematics (Optimization) who take Mathematics N-312, N-331 as their options may replace either Mathematics N-371* and N-466* or N-461 with Mathematics N-431.*

Physics

The following courses constitute an honours programme in Physics, provided the student maintains the required academic standing:

First Year: Physics N-241, N-251, N-291*, N-292*, Mathematics N-261, N-270 and N-280*.

Second Year: Physics N-336, N-345, N-352*, N-355*, N-364*, N-392*, N-394*, N-395*; Mathematics N-366*.

Third Year: Physics N-433*, N-435*, N-457, N-465*, N-467*, N-477*, N-478*, N-493*, N-495*, N-496*.

Psychology (Bachelor of Science)

The following courses constitute an honours programme in Psychology provided the student maintains the required academic standing:

First Year: Psychology N-241 or N-242, N-273 (see NOTE). N-412.

Second Year: 18 credits chosen from Psychology N-421, N-422, N-432, N-434, N-438, N-442, N-461. In addition N-375* may be taken as an option.

Third Year: Psychology N-413, N-472, and 6 additional credits selected from Psychology N-421, N-422, N-428, N-432, N-434, N-442, N-452, N-454, N-461, N-462, N-481, N-482, N-491*, N-492*, N-493*, N-494*.

NOTE: Students who have taken Psychology N-271 in first year and are then admitted to the honours programme will be exempt from Psychology N-273 but may be required to take Psychology N-471 in second year.

In addition:

Biology Option

First Year: Biology N-203*, Zoology N-215*; Chemistry N-231.

Second Year: Biology N-224*.

Third Year: Zoology N-320.

Mathematics Option

Mathematics N-241, N-281.

Twelve additional credits from among Mathematics N-261, N-270, N-341*, N-343*, N-351*, N-352*, Computer Science N-211*, N-221*.

The Psychology courses listed on page 229 of this calendar are acceptable as science credits in the Bachelor of Science degree. The course descriptions can be found in the Faculty of Arts section.

Biological Sciences

Associate Professor and Acting Chairman of the Department

Hildegard E. Enesco

Professor

Donald L. Peets

Associate Professors

F.S. Abbott

R.K. Ibrahim

Gerard Leduc

C.F. MacLeod

Assistant Professors

Perry D. Anderson

S.S. Ashtakala

Ernst Bleichert

Ruth L. Lowther

Robert H. McLaughlin

Elaine B.S. Newman

Richard Prince

Robert Roy

Sylvia M. Ruby

Students are responsible for satisfying their particular degree requirements, hence the following sequence *must* be read in conjunction with pages 196-201.

Biological Sciences: major

The following courses, in an approved sequence, constitute a major in Biological Sciences:

First Year: Biology N-202* (Students entering university with the CEGEP equivalent of Biology N-202* will be granted an exemption.) Biology N-203*, N-204*, N-213*, N-224*; Chemistry N-231.

Second & Third Years: Biology N-343*, N-380*, N-433*.

One of: Chemistry N-371 or Botany N-422.

One of: Biology N-253* or Zoology N-212* or Biology N-360*.

One of: Botany N-231* or Zoology N-215*.

One of: Botany N-320* and Botany N-360* or Zoology N-320.

In addition, 12 or 15 credits from the Department of Biological Sciences or in another related field chosen in consultation with the Department. (The 15 credits are required of those students who have been exempted from Biology N-202*.)

NOTE: Students who choose Chemistry N-371 as an elective are reminded that Chemistry N-231 and 12 credits from the Department of Biological Sciences are prerequisites.

Biological Sciences: honours

The following courses constitute an honours programme in Biological Sciences, provided the student maintains the required academic standing:

First Year: Biology N-202* (students entering university with the CEGEP equivalent of Biology N-202* will be granted an exemption.) Biology N-203*, N-204*, N-213*, N-224*; Chemistry N-231.

Second & Third Years: Biology N-343*, N-380*, N-433*, N-490.

One of: Chemistry N-371 or Botany N-422.

One of: Biology N-253* or Zoology N-212* or Biology N-360*.

One of: Botany N-231* or Zoology N-215*.

One of: Botany N-320* and Botany N-360* or Zoology N-320.

In addition, 24 or 27 credits from the field of Biological Sciences or related fields chosen in consultation with the Department of Biological Sciences. (The 27 credits are required of those students who have been exempted from Biology N-202*.)

NOTE: Students who choose Chemistry N-371 as an elective are reminded that Chemistry N-231 and 12 credits from the Department of Biological Sciences are prerequisites.

Biology

Biology N-201 (251)

General Biology I

A survey of basic principles of Biology: chemical basis of life, cell organization and control; elements of anatomy, physiology, morphogenesis, heredity and evolution. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for CEGEP Biology 301 may not take this course for credits.

*Biology N-202 (252)***General Biology II**

Prerequisite: CEGEP Biology 301 or equivalent.
Cell biology, elementary biochemistry,
developmental biology, physiology and genetics.
Lectures and laboratory. (3 credits)

NOTE: Students who have credits for CEGEP Biology 401 or equivalent may not take this course for credits.

*Biology N-203 (253)***Animal Biology**

Prerequisite: CEGEP Biology 301 or equivalent.
A survey of the major evolution trends in the
animal kingdom. The integration of systems in
relation to animal life will be stressed. Lectures
and laboratory. (3 credits)

*NOTE: Students who have credits for Zoology N-210
or Zoology N-211 may not take this course for
credits.*

*Biology N-204 (254)***Plant Biology**

Prerequisite: CEGEP Biology 301 or equivalent.
A survey of the major evolutionary trends in
the plant kingdom. The integration of structure
and function in relation to plant growth and
evolution will be stressed. Lectures and
laboratory. (3 credits)

*Biology N-213 (453)***Fundamentals of Ecology**

Prerequisite: CEGEP Biology 301 or equivalent.
An introduction to the basic principles of
ecology dealing with the most important
components of ecosystems. The course illustrates
how environmental factors determine the
distribution and abundance of plants and animals
in various aquatic and terrestrial biomes of the
world. Ecological implications of environmental
perturbation. Lectures only. (3 credits)

*Biology N-224 (444)***Cell Physiology**

Prerequisites: CEGEP Biology 401 or Biology
N-202 and Chemistry N-231, previously or
concurrently. A survey of the mechanisms
involved in the normal function of single cells
and subcellular components, particularly
organelles as well as their responses to
environmental stress. Lectures and laboratory.
(3 credits)

*Biology N-241 (241)***Genetics and Human Welfare**

A course on the principles of heredity as
understood by modern biology. It deals also with

the application of genetic principles to organisms,
including man. The biological basis of social
problems is dealt with at some length. Organic
evolution and its implications for human life and
welfare are considered. Lectures only.
(6 credits)

*Biology N-250 (Botany 414)***Biology of Fungi, Bacteria and Viruses**

This course is no longer offered.

It is replaced by Biology N-253 and Biology N-254.

*Biology N-253 (428)***Biology of Bacteria and Viruses**

Prerequisite: CEGEP Biology 301 or equivalent.
An introduction to theoretical and applied
aspects. The physiology of bacteria and viruses
as related to industrial, health, agricultural and
ecological considerations is discussed. Lectures
and laboratory. (3 credits)

*NOTE: Students who have credits for Biology N-250
(Botany 414) may not take this course for credits.*

*Biology N-254 (429)***Biology of the Fungi**

Prerequisite: CEGEP Biology 301 or equivalent.
A study of selected species from representative
groups including their occurrence, life-cycles and
growth requirements. In lectures, stress is
placed on their activities - in the cycling of
elements in nature, in damage to agricultural
crops and forests, in food spoilage, as human
pathogens, as industrial agents, as research
tools, and as sources of food and drugs.
Laboratories are mostly descriptive using
Canadian collections. Lectures and laboratory.
(3 credits)

*NOTE: Students who have credits for Biology N-250
(Botany 414) may not take this course for credits.*

*Biology N-255 (242)***Microorganisms and Man**

Prerequisite: High School biology or equivalent.
A public awareness course designed to supply
basic information to non-biologists. Attempts to
control continuing and recent problems due to
microscopic forms as causal agents in human
and plant diseases, spoilage of food, wood,
petroleum products and water pollution. Their
beneficial activities in nature and their use in
the production of drugs and foods are also
considered. Lectures only. (3 credits)

*NOTE: Science Students may not take this for
science credits.*

Biology N-310**Field Ecology**

Prerequisites: Biology N-213 and Botany N-210. Two weeks of field work in May. Qualitative and quantitative studies of aquatic and terrestrial ecosystems. Students do their field work immediately following the examination period. They will be expected to pay a minimum amount for their room and board. Field and laboratory work. (3 credits)

Biology N-314 (454)**Fundamentals of Limnology**

Prerequisite: Biology N-213 previously or concurrently. An introduction to the study of freshwater ecosystems with major emphasis on geographical, physical and chemical characteristics. The major topics include the origin of lake basins, lake morphology and morphometry, wave and currents, the optical and thermal properties of lakes, dissolved chemicals. Some aspects of water pollution are considered. Lectures only. (3 credits)

Biology N-343 (445)**Genetics I**

Prerequisites: CEGEP Biology 401 or Biology N-202. A course to illustrate the fundamental principles of inheritance in plants, animals and microorganisms. Mendelian genetics, gene linkage and mutation will be covered. The role of DNA as the hereditary material and genetic code will be studied in detail, as will the mechanisms of DNA, RNA and protein synthesis. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Biology N-342 (442) may not take this course for credits.

Biology N-344 (446)**Genetics of Higher Organisms**

Prerequisite: Biology N-343. This course will cover various aspects of the genetics of multicellular and eukaryotic organisms, including cytogenetics, developmental, human, behavioural and population genetics, as well as somatic cell genetics. Lectures only. (3 credits)

NOTE: Students who have credits for Biology N-342 (442) may not take this course for credits.

Biology N-360 (460)**Developmental Biology**

Prerequisite: Second year standing in Biological Sciences. A study of the molecular aspects of development in animal and plant cells in relation to the acquisition of form. Lectures only. (3 credits)

Biology N-371 (481)**History of Biology**

This course is no longer offered.

It is replaced by Biology N-372 and N-373.

Biology N-372 (481)**History of Biology**

Prerequisites: Any 12 credits from the Department of Biological Sciences. A course following the growth of Biological Sciences. Lectures only. (3 credits)

NOTE: Students who have credits for Biology N-371 (481) may not take this course for credits.

Biology N-373 (484)**Evolution**

Prerequisites: Any 12 credits from the Department of Biological Sciences. A course to examine the concepts leading from Darwin's Theory to a modern synthesis of evolution. Lectures only. (3 credits)

NOTE: Students who have credits for Biology N-371 (481) may not take this course for credits.

Biology N-380 (482)**Biostatistics I**

Prerequisite: Second year standing. Application of statistical methods to biological data. Descriptive statistics. Binomial, Poisson and Normal distributions. Confidence limits. Tests of significance. Introduction to analysis of variance, correlation and regression. Analysis of frequencies. Lectures and laboratory. (3 credits)

Biology N-381 (483)**Biostatistics II**

Prerequisite: Biology N-380. Sampling methods. Analysis of variance and experimental design. Regression and correlation techniques. Bioassay. Non-parametric statistics. Analytical methods in field biology/genetics and microbiology. Lectures and laboratory. (3 credits)

Biology N-415 (455)**Biological Limnology**

This course is no longer offered.

Biology N-416 (456)**Aquatic Ecology and Water Pollution**

Prerequisite: Biology N-314. An inquiry into factors governing the distribution and abundance of aquatic organisms in lakes and streams, with emphasis on the nature and significance of the responses of aquatic organisms and

communities through changes in water quality with pollution, on sources and types of pollutants and on methods of evaluating pollution and treating wastes. Lectures only. (3 credits)

Biology N-432 (472)

Histological Techniques

This course is no longer offered.

Biology N-433 (443)

Cytology

Prerequisites: CEGEP Biology 401 or Biology N-202 and Chemistry N-231. An introduction to cell structure of both plants and animals, with special reference to genetics and emphasis on the experimental and molecular aspects. Lectures and laboratory. (3 credits)

Biology N-434 (434)

Radiation Biology and Radiotracer Methodology I

Prerequisites: Biology N-224 previously or concurrently, 2nd or 3rd year standing. A survey of the elements of radiation physics with emphasis on the properties of ionizing radiation and its interaction with matter including dosimetry and methods of radiation counting. The effects of radiation at the macromolecular, cellular and organismal level will be considered from both the somatic and genetic points of view. Lectures and laboratory. (3 credits)

Biology N-435 (435)

Radiation Biology and Radiotracer Methodology II

Prerequisite: Biology N-434. A detailed study of selected topics in chemical and solid state dosimetry, liquid scintillation counting, neutron irradiation techniques, cell kinetics, target theory, radiation botany and mammalian radiobiology. Laboratory will emphasize the use of a wide range of radioisotopes and radiation sources. A visit to a major radiation lab or reactor will be arranged. Lectures and laboratory. (3 credits)

Biology N-445 (447)

Biological Regulatory Mechanism

Prerequisites: Chemistry N-371 or Botany N-422; Biology N-342 or Biology N-344. Basic their control and coordination; intercellular messengers in developmental and adult systems. Lectures and conference. (3 credits)

Biology N-446 (448)

Molecular Genetics

Prerequisites: Chemistry N-371 or Botany N-422; Biology N-342 or Biology N-344. Basic microbial and molecular genetics including mechanisms in protein synthesis; bacteriophage recombination. Use of genetics in the study of regulation of gene expression, the code and mechanisms in protein synthesis; bacteriophage genetics; episomes. Lectures and conference. (3 credits)

Biology N-490 (491)

Special Study

Prerequisites: Third year standing and permission from the Chairman of the Department or his representative. In this course, the student undertakes a special research project to develop his knowledge of scientific procedures as used by biologists. The project may include only library research or both library and experimental research. (6 credits)

Botany

Botany N-210 (430)

Eastern North American Flora

Prerequisite: Biology N-204, previously or concurrently. A study of higher plant life occurring in Eastern North America, including their recognition, collection, identification, classification and distribution. Field work for practical experience with the regional flora in various habitat. Lectures and laboratory. (3 credits)

Botany N-213 (421)

Economic Botany

Prerequisite: CEGEP Biology 301 or equivalent. Origin, development and use of selected economic plants including microorganisms. Their historical impact, prospects for future use and importance to Canadian economy are stressed as well as world-wide problems of food and alimentation. Lectures only. (3 credits)

Botany N-215 (434)

Biology of Mosses and Lichens

Prerequisite: Biology N-204 previously or concurrently. A survey of these organisms including distribution, classification, morphology and anatomy - information on nutrient cycling, use as indicators of air pollution and use as a research tool. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Botany 411 may not take this course for credits.

Botany N-216 (435)**Biology of Fresh Water and Marine Algae**

Prerequisite: CEGEP Biology 301 or equivalent. A study of selected species from representative fresh-water and marine groups including their occurrence, life-cycles and growth requirements. Topics include their involvement - in polluted and non-polluted water systems, in sewage treatment, as primary producers in food chains, in the formation of natural habitats, as special research subjects as well as their increasing economic importance in industry and as food supplements. Laboratories are mostly descriptive using Canadian collections. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Botany N-212 (415) may not take this course for credits.

Botany N-230 (412)**Plant Anatomy**

This course is no longer offered.
It is replaced by Botany N-231.

Botany N-231 (410)**Plant Anatomy**

Prerequisite: Biology N-204. A study of the internal structure of the plant as related to the processes of growth and metabolism. An experimental approach is presented to the study of the relationship between structure and function of various parts of the plant. Includes pathological, ecological and economic aspects of anatomy with emphasis on developmental anatomy. Laboratory work includes preparation of permanent slides using plant microtechnique. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Botany N-230 (412) may not take this course for credits.

Botany N-311**Taxonomy of Higher Plants**

Prerequisite: Biology N-204. A study of modern systematics concerned with the application of experimental techniques in genetics, cytology, chemistry and statistics to the solution of questions relating to the classification of plants and their evolutionary sequences. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Botany 411 may not take this course for credits.

Botany N-312 (422)**Plant Ecology**

This course is no longer offered.
It is replaced by Botany N-313.

Botany N-313 (423)**Plant Ecology**

Prerequisites: Biology N-204, N-213. Dynamic effects of physical and biotic factors on vegetation: succession, climax and influence of man. Elements of experimental ecology and field biology from the autecological to the phytogeographical level. Lectures only. (3 credits)

NOTE: Students who have credits for Botany N-312 may not take this course for credits.

Botany N-320 (431)**Plant Metabolism**

Prerequisite: Chemistry N-231. A study of the physiological processes of higher plants related to nutrition and metabolism. Topics include: absorption and transport of water and mineral salts, mineral nutrition, photosynthesis, carbohydrate and nitrogen metabolism. Metabolic processes are discussed in relation to structure and environmental factors and some aspects of energy transformations and energy flow are included. Interrelations among the various metabolic processes are discussed. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Botany 413 may not take this course for credits.

Botany N-360 (432)**Plant Growth**

Prerequisite: Botany N-320 previously or concurrently. A physiological and biochemical study of growth regulators, their mechanism of action and their role in plant growth and metabolism. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Botany 413 may not take this course for credits.

Botany N-421**Advanced Plant Physiology**

Prerequisite: Botany N-320. The physiological and molecular basis of plant response to various environmental stresses such as freezing, drought, soil toxicants, environmental pollutants and radiation effects are discussed. The study of the control of such stresses and of the injuries they produce, resistance, tolerance and avoidance mechanisms that exist are discussed. Response of crop plants and effects on crop quality and crop yields are stressed. Lectures only. (3 credits)

Botany N-422 (418)

Plant Biochemistry

Prerequisites: Biology N-204 and Chemistry N-231. Biochemical study of the common natural plant constituents including secondary metabolites, their biosynthesis and role in plant metabolism. Lectures and laboratory. (6 credits)

Botany N-461 (417)

Plant Morphogenesis

This course is no longer offered.

Zoology

Zoology N-210 (421)

Invertebrate Zoology

This course is no longer offered.

It is replaced by Zoology N-212.

Zoology N-212

Invertebrate Zoology

Prerequisite: Biology N-203 previously or concurrently. An introductory course to the structure and function of the invertebrate phyla. Emphasis will be placed on evolutionary aspects. Laboratory work will include mainly physiological experiments with living organisms. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Zoology N-210 may not take this course for credits.

Zoology N-211 (422)

Chordate Anatomy

This course is no longer offered.

It is replaced by Zoology N-215.

Zoology N-213 (424)

Parasitology

Prerequisite: Biology N-203, previously or concurrently. A survey of the parasitic groups of invertebrates with special reference to the parasites of man. Lectures and laboratory. (3 credits)

Zoology N-214 (425)

Entomology

Prerequisite: Biology N-203, previously or concurrently. An introduction to the study of insects, their morphology, taxonomy, physiology and ecology. Lectures and laboratory. (3 credits)

Zoology N-215 (422)

Chordate Anatomy

Prerequisite: Biology N-203. A study of the anatomy and evolutionary development of the major organ systems of the chordates. In the laboratory the lamprey, the mudpuppy, the turtle

and the cat will be dissected. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Zoology N-211 may not take this course for credits.

Zoology N-313 (453)

Animal Ecology

Prerequisites: Biology N-203 and N-213. A study of the factors influencing animal populations, regulation of animal numbers involving competition, predation and migrations. Lectures only. (3 credits)

Zoology N-316 (453)

Animal Ecology

This course is no longer offered

It is replaced by Zoology N-313.

NOTE: Students who have credits for Zoology N-316 may not take this course for credits.

Zoology N-320 (431)

Animal Physiology

Prerequisites: Biology N-203 and Chemistry N-231. A study of comparative animal physiology at the systems level. Lectures and laboratory. (6 credits)

Zoology N-330 (471)

Comparative Vertebrate Histology

This course is no longer offered.

It is replaced by Zoology N-331 and N-332.

Zoology N-331 (473)

Comparative Vertebrate Histology I

Prerequisite: Biology N-203. A comparative study of the microscopic characteristics of cells, tissues and organs of the vertebrates. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Zoology N-330 may not take this course for credits.

Zoology N-332 (474)

Comparative Vertebrate Histology II

Prerequisite: Zoology N-331. An advanced comparative study of the vertebrate organ systems at the ultrastructural and histological level. Those registered will be expected to participate in a seminar. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Zoology N-330 may not take this course for credits.

Zoology N-360 (461)**Vertebrate Embryology**

This course is no longer offered.

It has been replaced by Zoology N-361.

Zoology N-361 (462)**Vertebrate Embryology**

Prerequisite: Zoology N-215 previously or concurrently. The fundamental processes of growth and development in the vertebrates. A comparative study is made of selected vertebrate species with emphasis on the experimental and molecular aspects. Lectures and laboratory. (3 credits)

Zoology N-412 (423)**Advanced Vertebrate Ecology**

This course is no longer offered.

Zoology N-421 (432)**Advanced Animal Physiology**

This course is no longer offered.

It is replaced by Zoology N-422.

Zoology N-422 (432)**Advanced Animal Physiology**

Prerequisites: Zoology N-320, Biology N-213 previously or concurrently. Lectures and seminars dealing with selected topics in environmental and comparative physiology. Lectures only. (3 credits)

NOTE: Students who have credits for Zoology N-421 (432) may not take this course for credits.

Chemistry

*Professor and Chairman
of the Department*

James G. Dick

*Associate Professor and Vice-Chairman of the
Department*

Roderick E. Townshend

Professor and Dean of Science

Roger H.C. Verschingel

Professor

John Russell Ufford

Associate Professors

Thomas J. Adley

Peter H. Bird

George Campbell

Lawrence D. Colebrook

Zacharias Hamlet

Jacques Lenoir

Robin T.B. Rye

Nick Serpone

Ronald A. Westbury

*Adjunct Assistant
Professors*

Irshad Chaudry

Neville Gurudata

Adjunct Professor

Thomas Nogrady

Assistant Professor

Oswald S. Tee

NOTE: The Corporation of Professional Chemists of Quebec has fully accredited the curricula of Majors in Chemistry, Biochemistry and Analytical Chemistry. Upon satisfactory completion of a Major programme a graduate is eligible for membership in the Corporation.

Students are responsible for satisfying their particular degree requirements, hence the following sequence *must* be read in conjunction with pages 196-201.

Analytical Chemistry: major

The following courses, in an approved sequence, constitute a major in Analytical Chemistry:

First Year: Chemistry N-211*, N-213*, N-221, N-231, N-241. Computer Science N-211* and N-221*.

Second Year: Chemistry N-311*, N-323*, N-331,

N-341, N-353. Computer Science N-301* and N-310*.

Third Year: Chemistry N-452*, N-453*, N-491. Computer Science N-340*.

NOTE: Students who major in Analytical Chemistry are exempted from the corequisite Computer Science N-220 for N-310*.*

Biochemistry: major

The following courses, in an approved sequence, constitute a major in Biochemistry:

First Year: Chemistry N-211*, N-213*, N-231, N-241 and 6 additional credits in Biological Sciences in consultation with the Department.

Second Year: Chemistry N-331, N-341, N-351, N-371 and 6 additional credits in Biological Sciences in consultation with the Department.

Third Year: Chemistry N-471, or N-472. Physics N-480*.

6 additional credits in Chemistry.

6 additional credits in Biological Sciences, Biophysics or Psychology listed under Science Faculty, in consultation with the Department.

Chemistry: major

The following courses, in an approved sequence, constitute a major in Chemistry:

First Year: Chemistry N-211*, N-213*, N-221, N-231, N-241.

Second Year: Chemistry N-311*, N-331, N-341, N-353.

Third Year: Chemistry N-323*. Prerequisites: Minimum of 3 credits from N-441, N-442*, N-443*, N-452*, N-461. Six additional credits from the 400-level series courses.

NOTE: Students who choose Chemistry N-461 are reminded that Mathematics N-270 is a prerequisite.

Chemistry: honours

First Year: Chemistry N-211*, N-213*, N-221, N-231, N-241; Mathematics N-270.

Second Year: Chemistry N-311*, N-321, N-331, N-341, N-353.

Third Year: Chemistry N-431, N-441, N-451, N-461, N-491.

NOTE: The Corporation of Professional Chemists of Quebec has fully accredited the curriculum of Honours in Chemistry. Upon satisfactory completion of an Honours programme a graduate is eligible for membership in the Corporation.

Chemistry N-201

General Chemistry I

States of matter. Atoms, elements and isotopes; atomic structures. The electronic structure of atoms. The Periodic Table and chemical bonding. Ions in solution. Lectures, tutorials and laboratories. (3 credits)

NOTE: Science Students may not take this course for credits.

NOTE: Any student who has passed CEGEP Chemistry 201 may not take this course for credits.

Chemistry N-202

General Chemistry II

Covalent compounds. Chemical reactions; mechanism and kinetics. Special topics; oriented either to the biological sciences, biochemistry and chemistry, or to the physical sciences, engineering and computer sciences. Lectures, tutorials and laboratories. (3 credits)

NOTE: Science Students may not take this course for credits.

NOTE: Any student who has passed CEGEP Chemistry 301 may not take this course for credits.

Chemistry N-211 (412)

Introductory Quantitative Analysis

Prerequisites: CEGEP Chemistry 201; CEGEP Physics 301; CEGEP Mathematics 103 and 203; or equivalent courses. Chemical equilibrium as applied to volumetric and gravimetric procedures; general theory of volumetric titrations; titration curves; application of general titration theory to neutralization precipitation, complexation, oxidation-reduction and non-aqueous solvent titrations; theory of potentiometry and potentiometric titrations; theory of gravimetric analysis; methods of separation by chemical and physical means; electrogravimetry and electrolytic separations; absorptimetric theory and absorptimetric methods of analysis. Lectures and laboratory. (4 credits)

Textbook: Dick: *Analytical Chemistry* (McGraw-Hill)

Chemistry N-213 (413)

Statistical Treatment of Chemical Data

Prerequisites: CEGEP Chemistry 201; CEGEP Physics 301; CEGEP Mathematics 103 and 203; or equivalent courses. The statistical treatment of chemical data including: observations and measurements; error and accuracy; significant figures, expression of results; probability theory, normal and Poisson error distributions; precision; measures of spread; propagation of errors; rejection of observations; statistical analysis; graphical analysis; straight line law; nonlinear laws; method of least squares; accuracy of values derived from graphs; literature data, primary and secondary sources; use of chemical literature indices. Lectures only. (3 credits)

Textbook: Bauer: *A Statistical Manual for Chemists* (Academic Press)

Chemistry N-221 (411)**Introductory Inorganic Chemistry**

Prerequisites: CEGEP Chemistry 201; CEGEP Physics 301; CEGEP Mathematics 103 and 203; or equivalent courses. Introduction to structural and descriptive chemistry of the main-group elements including: the chemical properties of atoms, properties of ionic compounds, bonding in covalent compounds, solutions. A group by group treatment of the descriptive chemistry of the non-transition elements. Lectures and laboratory. (6 credits)

Textbook: Mackay and Mackay: *Introduction to Modern Inorganic Chemistry* (Intertext)

Chemistry N-231 (421)**Introductory Organic Chemistry**

Prerequisite: CEGEP Chemistry 201 or an equivalent course. Chemistry of aliphatic and aromatic compounds; structural isomerism; stereoisomerism; mechanisms; electronic theories and stereochemistry of organic reactions; applications of spectroscopy to organic chemistry. Lectures and laboratory. (6 credits)

Textbook: Allinger, Cava, De Jongh, Johnson, Lebel and Stevens: *Organic Chemistry* (Worth Publishers)

Chemistry N-241 (431)**Introductory Physical Chemistry**

Prerequisites: CEGEP Chemistry 201; CEGEP Physics 301; CEGEP Mathematics 103 and 203; or equivalent courses. Real gases; kinetic molecular theory; equilibrium thermodynamics (first, second and third laws); electrochemical cells and the Nernst equation; applications of thermodynamics to one-component, two-component and three-component systems; chemical kinetics; ions in solution. Lectures only. (6 credits)

Textbook: Barrow: *Physical Chemistry* (McGraw-Hill, 2nd edition)

Chemistry N-281 (461)**Industrial Inorganic Chemistry**

Prerequisite: CEGEP Chemistry 201 or an equivalent course. Study of selected industrial inorganic processes. This course is not applicable towards a major in Chemistry. Lectures only. (3 credits)

Textbook: Shreve: *Chemical Process Industries* (McGraw-Hill, 3rd edition)

Chemistry N-301 (401)**Chemical Pedagogy**

Prerequisite: CEGEP Chemistry 201 or an equivalent course; one full laboratory course at university level. The methodology of teaching chemistry at various levels including: the objectives of chemical education; the presentation of chemical concepts; the communication skills; the mathematical skills; the editing of a course and its lectures; the philosophy of laboratory procedure; the examination; the textbook; planning and budgeting; visual aids. Lectures only. (6 credits)

Chemistry N-311 (417)**Advanced Quantitative Analysis**

Prerequisites: Chemistry N-211, N-213, N-221; Chemistry N-353 or N-351 previously or concurrently. The theory and application of instrumental methods of analysis to quantitative chemistry including: coulometry; coulometric titrations; conductometry; conductometric titrations; voltammetry and polarography; amperometric titrations; chronopotentiometry and chronoamperometry; spectrophotometry; spectrophotometric titrations; nephelometry, turbidimetry and fluorometry; flame photometry; atomic absorption spectroscopy; emission spectroscopy; x-ray absorption and emission (fluorescence) spectroscopy. Lectures and laboratory. (3 credits)

Textbooks: Dick: *Analytical Chemistry* (McGraw-Hill)

Williars, Merritt and Dean: *Instrumental Methods of Analysis* (Van Nostrand)

Chemistry N-321 (415)**Advanced Inorganic Chemistry**

Prerequisites: Chemistry N-211, N-221; Chemistry N-353 previously or concurrently.

Introduction to symmetry and group theory and their application to chemical systems. Coordination chemistry: structure, theory of bonding, reactivity of transition metal complexes of various coordination numbers. Descriptive chemistry of transition metals of various oxidation states. Organometallic chemistry. Inorganic chemistry in biological systems. Lectures and laboratory. (6 credits)

Textbooks: Cotton: *Chemical Applications of Group Theory* (Interscience, 2nd edition)
Huheey: *Inorganic Chemistry - Principles of Structure and Reactivity* (Harper and Row)

Angelici: *Synthesis and Techniques in Inorganic Chemistry* (Saunders)

NOTE: Students who have credits for Chemistry N-323 may not take this course for credits.

Chemistry N-323 (419)

Chemistry of the Transitional Elements

Prerequisites: Chemistry N-211, N-221, Chemistry N-353 previously or concurrently. Coordination chemistry: structure, theory of bonding, reactivity of transition metal complexes of various coordination numbers. Descriptive chemistry of transition metals of various oxidation states. Organometallic chemistry. Inorganic chemistry in biological systems. Lectures and laboratory. (3 credits)

Textbooks: Huheey: *Inorganic Chemistry - Principles of Structure and Reactivity* (Harper and Row)

Angelici: *Synthesis and Techniques in Inorganic Chemistry* (Saunders)

NOTE: Students who have credits for Chemistry N-321 may not take this course for credits.

Chemistry N-331 (427)

Intermediate Organic Chemistry

Prerequisites: Chemistry N-231, N-241; Chemistry N-353 previously or concurrently. Amplification of concepts presented in introductory organic chemistry; reaction mechanisms; catalysis; conformational analysis and stereochemistry. Laboratory includes qualitative analysis of compounds and mixtures by spectroscopic techniques; small scale preparations; selected experiments in physical organic chemistry. Lectures and laboratory. (6 credits)

Textbook: March: *Advanced Organic Chemistry: Reactions, Mechanisms and Structure* (McGraw-Hill)

Chemistry N-336 (471)

Natural Products I

Prerequisite: Chemistry N-231. Structures, stereochemistry and reactions of carbohydrates; synthesis, stereochemistry and physiochemical properties of amino-acids; determination of amino-acid sequences; synthetic methods; conformations of polypeptides and proteins. Lectures only. (3 credits)

Textbooks: Guthrie and Honeyman: *Introduction to the Chemistry of Carbohydrates* (Oxford, 3rd edition).

Kopple: *Peptides and Amino Acids* (Benjamin)

Chemistry N-337 (473)

Natural Products II

Prerequisite: Chemistry N-231. The synthesis, stereochemistry and structure determination of lipids (triglycerides, phospholipids, sphingolipids and sterols); steroid hormones; antibiotics; nucleotides. Lectures only. (3 credits)

Textbooks: Ulbricht: *Purines, Pyrimidines and Nucleotides and the Chemistry of Nucleic Acids* (Pergamon)

Yates: *Structure Determination* (Benjamin)

Chemistry N-338 (472)

Chemistry of High Polymers I

Prerequisites: Chemistry N-231, N-241. Methods and mechanisms of polymer preparation; condensation polymerization; addition polymerization; ring opening reactions; vinyl and diene polymers; polyesters; polyamides; polythioethers; properties of polymers and their related monomers. Lectures only. (3 credits)

Textbook: Lenz: *Organic Chemistry of Synthetic High Polymers* (Wiley)

Chemistry N-341 (432)

Intermediate Physical Chemistry

Prerequisite: Chemistry N-241. Topics in chemical kinetics and thermodynamics including mechanisms of elementary processes; reactions in the gas-phase and in solution; the Rice-Ramsperger-Kassel, and Slater theoretical treatments; Rice-Herzfeld mechanisms; applications of the foregoing treatments to selected systems; introduction to modern techniques for the study of very fast reactions; mathematical treatment of mixtures of real gases; partial molal properties; fugacities and activities; determination of activities of non-electrolytes and electrolytes. Lectures and laboratory. (6 credits)

Textbooks: Laidler: *Chemical Kinetics* (McGraw-Hill, 2nd edition)

Daniels, et al: *Experimental Physical Chemistry* (McGraw-Hill, 7th edition)

Klotz and Rosenberg: *Chemical Thermodynamics* (Benjamin, 3rd edition)

*Chemistry N-346 (474)***Chemistry of High Polymers II**

Prerequisites: Chemistry N-231, N-241. Study of the physical chemistry of high polymers including: examination of the physical properties of polymers; methods for studying polymers; polymer solution theory; molecular weight distributions and fractionation; molecular weight determinations by colligative properties, light scattering and ultracentrifuge techniques; mechanisms and kinetics of condensation and addition, polymerization; free radical and ionic polymerization. Lectures only. (3 credits)

Textbook: Billmeyer: *Textbook of Polymer Science* (Interscience: 2nd edition)

*Chemistry N-351 (440)***Theory and Practice of Biochemical Techniques**

Prerequisites: Chemistry N-211, N-231, N-241; Chemistry N-371 previously or concurrently. Basic principles and applications of UV, IR, Raman, fluorescence, phosphorescence, NMR and EPR spectroscopy and mass spectrometry to chemistry and biochemistry; basic principles and applications of gas chromatography, column chromatography, thin layer chromatography, gel filtration and electrophoresis; introduction to optical rotary dispersion. Lectures and laboratory. (6 credits)

Textbook: Brittain, George and Wells: *Introduction to Molecular Spectroscopy* (Academic)

*Chemistry N-352 (449)***Practice of Biochemical Techniques**

Prerequisite: Chemistry N-353. Basic principles and applications of gas chromatography, column chromatography, thin-layer chromatography, gel filtration and electrophoresis; introduction to optical rotary dispersion. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Chemistry N-351 may not take this course for credits.

*Chemistry N-353 (490)***Introductory Chemical Instrumentation**

Prerequisites: Chemistry N-211, N-231, N-241. Basic principles and applications of UV, IR, Raman, fluorescence, phosphorescence, NMR, and EPR spectroscopy and mass spectrometry to chemistry and biochemistry; basic principles of electricity and electronics; analysis of

operational amplifier, servorecorder, Ph meter, polarograph, logic and data acquisition circuits. Lectures and laboratory. (6 credits)

Textbooks: Malmstadt and Enke: *Digital Electronics for Scientists* (Benjamin)

Brittain, George and Wells: *Introduction to Molecular Spectroscopy* (Academic)

*Chemistry N-354 (499)***Introductory Instrumentation**

Prerequisite: Chemistry N-351. Basic principles of electricity and electronics; analysis of operational amplifier, servorecorder, Ph meter, polarograph, logic and data acquisition circuits. Lectures and laboratory. (3 credits)

Textbook: Malmstadt and Enke: *Digital Electronics for Scientists* (Benjamin)

NOTE: Students who have credits for Chemistry N-353 may not take this course for credits.

*Chemistry N-371 (441)***General Biochemistry**

Prerequisites: Chemistry N-231 and 6 credits in Biological Sciences at the university level, Chemistry students must have, in addition, Chemistry N-211 and N-241. Biological Science students must have, in addition, 6 credits in Biological Sciences at the university level. Comparative and functional approach to the chemical activities of living organisms including a fundamental simple compound common to most plants and animals and its utilization in biopolymers; basic metabolic patterns involved in life processes; introduction to bioenergetics and specialized functions of cells and organs; biochemical relationship to environment and its changes. Lectures and laboratory. (6 credits)

Textbook: Leninger: *Biochemistry* (Worth)

*Chemistry N-380***General Industrial Chemistry**

Prerequisite: Second year chemistry students or permission of the Department. Broad outline of major factors to be considered by the chemical industry when contemplating manufacture of a new product or product group - with special emphasis on market determination; customs; tariffs; use of Statistics Canada data; existing or potential competition; inherent advantages or disadvantages; relative importance of labour versus capital; plant location; transportation considerations; by-product disposition; hazard and pollution considerations; government regulated products; government incentives; marketing channels; export considerations; foreign tariffs and non-tariff barriers. Lectures only. (3 credits)

Chemistry N-381 (464)

General Industrial Chemistry

This course is no longer offered.

Chemistry N-382 (462)

Industrial Organic Chemistry I

Prerequisite: Chemistry N-231. Study of selected industrial organic processes. This course is not applicable towards a major in Chemistry. Lectures only. (3 credits)

Textbook: Shreve: *Chemical Process Industries* (McGraw-Hill, 3rd edition)

Chemistry N-383 (463)

Industrial Organic Chemistry II

Prerequisite: Chemistry N-231. Study of additional organic processes not covered in Chemistry N-382. This course is not applicable towards a major in Chemistry. Lectures only. (3 credits)

Textbook: Shreve: *Chemical Process Industries* (McGraw-Hill, 3rd edition)

Chemistry N-431 (428)

Advanced Organic Chemistry

Prerequisites: Chemistry N-331, N-341, N-353. Advanced stereochemistry, atropisomerism, physical organic chemistry, chemistry of natural products, photochemistry. Laboratory includes experiments in physical organic chemistry, synthetic and instrumental methods. Lectures and laboratory. (6 credits)

Textbooks: March: *Advanced Organic Chemistry: Reactions, Mechanisms and Structure* (McGraw-Hill)

Mislow: *Introduction to Stereochemistry* (Benjamin)

Chemistry N-441 (433)

Advanced Physical Chemistry

Prerequisite: Chemistry N-341. Advanced topics in thermodynamics, including equilibrium, non-equilibrium and statistical approaches to selected systems; methods of determination of activities; the free-energy function and its applications; thermodynamics of solids; estimation of thermodynamic properties; de Donder's concepts; fused salts; high-temperature thermodynamics; elements of probability theory; microcanonical, canonical and grand canonical ensembles; the Boltzmann distribution; quantum mechanical treatment of an ideal gas; Fermi-Dirac and Bose-Einstein statistics; Einstein

and Debye models of a monoatomic crystal; conformation of polymer chains. Lectures and laboratory. (6 credits)

Textbooks: Knuth: *Introduction to Statistical Thermodynamics* (McGraw-Hill)

Salzberg et al: *Laboratory Course in Physical Chemistry* (Academic Press)

NOTE: Students who have credits for Chemistry N-442 and/or N-433 may not take this course for credits.

Chemistry N-442 (434)

Statistical Thermodynamics

Prerequisite: Chemistry N-341. Elements of probability theory; microcanonical, canonical and grand canonical ensembles; the Boltzmann distribution; quantum mechanical treatment of an ideal gas; Fermi-Dirac and Bose-Einstein statistics; Einstein and Debye models of a monoatomic crystal; conformation of polymer chains. Lectures and laboratory. (3 credits)

Textbooks: Knuth: *Introduction to Statistical Thermodynamics* (McGraw-Hill)

Salzberg et al: *Laboratory Course in Physical Chemistry* (Academic Press)

NOTE: Students who have credits for Chemistry N-441 may not take this course for credits.

Chemistry N-443 (435)

Advanced Thermodynamics

Prerequisite: Chemistry N-341. Advanced topics in classical thermodynamics, comprising equilibrium and non-equilibrium approaches to selected systems. Methods of determination of activities; the free-energy function and its applications; thermodynamics of solids; estimation of thermodynamic properties; de Donder's concepts; fused salts; high temperature thermodynamics. Lectures and laboratory. (3 credits)

Textbook: Salzberg et al: *Laboratory Course in Physical Chemistry* (Academic Press)

NOTE: Students who have credits for Chemistry N-441 may not take this course for credits.

Chemistry N-451 (491)

Advanced Chemical Instrumentation

Prerequisites: Chemistry N-311, N-331, N-341, N-353. Rotational and rotational-vibrational spectroscopy of linear, symmetrical top and asymmetrical molecules; vibrational spectroscopy, molecular symmetry and group theory; Raman spectroscopy; Fourier transform spectroscopy; electron spin spectroscopy; digital electronics

in control equipment, integration, signal averaging A to D and D to A conversion and data acquisition. Lectures and laboratory. (6 credits)

Textbooks: Malmstadt and Enke: *Digital Electronics for Scientists* (Benjamin); Brittain, George and Wells: *Introduction to Molecular Spectroscopy* (Academic Press)

NOTE: Students who have credits for Chemistry N-452 and/or N-453 may not take this course for credits.

Chemistry N-452 (492)

Chemical Spectroscopy

Prerequisites: Chemistry N-311, N-331, N-341, N-353. Rotational and rotational-vibrational spectroscopy of linear, symmetrical top and asymmetrical molecules; vibrational spectroscopy; molecular symmetry and group theory; Raman spectroscopy; Fourier transform spectroscopy; electron spin spectroscopy. Lectures and laboratory. (3 credits)

Textbook: Brittain, George and Wells: *Introduction to Molecular Spectroscopy* (Academic Press)

NOTE: Students who have credits for Chemistry N-451 may not take this course for credits.

Chemistry N-453 (493)

Advanced Analytical Instrumentation

Prerequisites: Chemistry N-311, N-331, N-341, N-353. Digital electronics in control equipment; integration, signal averaging A to D and D to A conversion and data acquisition. Lectures and laboratory. (3 credits)

Textbook: Malmstadt and Enke: *Digital Electronics for Scientists* (Benjamin)

NOTE: Students who have credits for Chemistry N-451 may not take this course for credits.

Chemistry N-461 (416)

Theoretical Chemistry

Prerequisites: Chemistry N-221, N-331, N-341; Mathematics N-270. Introduction to quantum theory; vibrational and rotational spectroscopy; structure of atoms and molecules; molecular orbital theory; valence bond theory; structure of metals, organo-metallic and coordination compounds; atomic and molecular spectroscopy; ligand field theory. Lectures only. (6 credits)

Textbook: La Paglia: *Introductory Quantum Chemistry* (Harper and Row)

Chemistry N-471 (443)

Advanced Biochemistry I

Prerequisites: Chemistry N-351, N-371. Selected topics from the general area of physical biochemistry; ultracentrifugation and its applications; biopolymer size and shape, energetics of catabolism and anabolism; comparative biochemistry; chemistry of the central nervous system; protein and enzyme chemistry; metabolic pathways. Lectures and laboratory. (6 credits)

Chemistry N-472 (444)

Advanced Biochemistry II

Prerequisites: Chemistry N-351, N-371. Selected topics from the general areas of structural biochemistry; biosynthetic pathways; lipids; carbohydrates; nucleic acids. Lectures and laboratory. (6 credits)

Chemistry N-481

Industrial Synthetic Chemistry

Prerequisites: Chemistry N-331, N-353 or equivalents. Selected fields of study in the industrial synthesis of fine chemicals, pharmaceutical intermediates, dyestuffs, pigments, agricultural chemicals and others. Group assignments will involve the up-scaling of laboratory synthesis to batch levels; evaluation of needs; search of patent literature, toxicology, pollution and other related industrial legislation. Lectures and laboratory. (3 credits)

Chemistry N-491 (450)

Research Project and Thesis

Prerequisite: Permission of the Department. The student will work on a research project under the direction of a staff member, and will write a thesis on the results. (6 credits)

NOTE: This course is required of final-year honours students. Some final-year major students may take it with special permission. Students planning to take this course should consult with the Chemistry department as early as possible the year before the final year.

Computer Science

The courses in Computer Science listed below are acceptable as science credits in the Bachelor of Science degree. Course descriptions can be found in the Faculty of Engineering section.

Computer Science N-211 (3 credits)
Introduction to Computers and Computing

Computer Science N-220 (3 credits)
Introduction to Discrete Structures

Computer Science N-221 (3 credits)
Introduction to Assembly Language Programming

Computer Science N-223 (3 credits)
Computer Languages

Computer Science N-301 (3 credits)
Computer Organization

Computer Science N-302 (3 credits)
Computer Operating Systems

Computer Science N-303 (3 credits)
Programming Languages and Compiler Theory

Computer Science N-310 (3 credits)
Intermediate Scientific Programming

Computer Science N-312 (3 credits)
Data and File Structures I

Computer Science N-320 (3 credits)
Numerical Methods

Computer Science N-340 (3 credits)
Special Purpose Computer Systems

Computer Science N-404 (3 credits)
Formal Languages and Syntactic Analysis

Computer Science N-405 (3 credits)
Computer Graphics

Computer Science N-413 (3 credits)
Data and File Structures II

Computer Science N-421 (3 credits)
Introduction to the Theory of Automata

Computer Science N-430 (3 credits)
Logical Design and Switching Theory

Computer Science N-440 (3 credits)
Heuristic Programming

Computer Science N-450 (3 credits)
Discrete System Simulation

Computer Science N-491 (6 credits)

Computer Science Project

Economics

The courses in Economics listed below are acceptable as science credits in the Bachelor of Science degree. Course descriptions can be found in the Faculty of Arts section.

Economics N-270 (3 credits)
Mathematics for Economists I

Economics N-271 (3 credits)
Mathematics for Economists II

Economics N-412 (3 credits)
Mathematical Economics I

Economics N-413 (3 credits)
Mathematical Economics II

Economics N-476 (3 credits)
Econometrics I

Economics N-477 (3 credits)
Econometrics II

Geology

Associate Professor and Chairman of the Department

André N. Deland

Associate Professor

Henry S. de Romer

Assistant Professor

Stephen Kumarapeli

Students are responsible for satisfying their particular degree requirements, hence the following sequence *must* be read in conjunction with pages 196-201.

Geology: major

The following courses, in an approved sequence, constitute a major in Geology:

First Year: Geology N-213*, N-214*, N-231*, N-232* and Chemistry N-241.

Second Year: Geology N-322*, N-323*, N-342, N-348*, N-349*, N-352*, N-353*.

Third Year: Geology N-460, and 6 additional credits in Geology.

It is advisable that geology students do at least one summer of field work with government geological field parties or with private exploration companies.

Geology: Minor in Ecology: major

The following courses, in an approved sequence, constitute a major in Geology with a minor in Ecology:

The courses listed under the major in Geology together with the following:

Biology N-203*, N-204*, N-213*, and 15 additional credits chosen in the area of Ecology in consultation with the Department of Biological Sciences.

Geology N-213 (213)

Introductory Geology I: Earth Materials

An elementary study of minerals, igneous, metamorphic and sedimentary rocks and their structures; fossils, soils, mineral resources, ground water; their origin and economic significance. Laboratory work deals mainly with methods of identification of minerals, rocks and fossils; field trips to points of interest in Montreal area. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Geology N-211, or 211, or CEGEP 901 or the equivalent may not take this course for credits.

Geology N-214 (214)

Introductory Geology II: Earth Processes

Prerequisite: Geology N-213. Elementary treatment of the internal and external geological processes which shape the earth's surface, including the concept of plate tectonics; speculations on the origin of the earth and life. Laboratory work includes interpretation of topographic and geological maps. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Geology N-211, or 211, or CEGEP 901 or the equivalent may not take this course for credits.

Geology N-231 (221)

Mineralogy

The study of the physical properties of minerals; their chemical properties; descriptive and determinative mineralogy; crystallography; various classes of symmetry. A few field trips near Montreal. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Geology 021 or equivalent may not take this course for credits.

Geology N-232 (222)

Optical Mineralogy

Prerequisite: Geology N-231. The study of minerals under the polarizing microscope. Identification of minerals in thin sections and in oil immersion. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Geology 022 or the equivalent may not take this course for credits.

Geology N-322 (424)

Sedimentary Rocks and Stratigraphy

Prerequisite: Geology N-232. Sedimentary rocks, diagenetic changes; sedimentary facies; introduction to stratigraphic column and stratigraphic principles. Lectures and laboratory. One field trip around Montreal. (3 credits)

NOTE: Students who have credits for Geology N-321, or 212, or 012 or the equivalent may not take this course for credits.

Geology N-323 (425)

Historical Geology

Prerequisites: Geology N-213, N-214. Principles of historical geology and geochronology, evolution of major animal groups from Precambrian time to Recent including the evolution of man; geological evolution of North America; natural resources associated with sedimentary rocks. Lectures only. (3 credits)

NOTE: Students who have credits for Geology N-321, or 212, or 012 or the equivalent may not take this course for credits.

Geology N-342 (426)

Igneous and Metamorphic Petrology

Prerequisites: Geology N-213, N-214, N-231, N-232. Principles of physical chemistry applied to minerals and rocks; study of phase diagrams; the origin, formation, association, description and classification of igneous and metamorphic rocks. Lectures and laboratory. (6 credits)

NOTE: Students who have credits for Geology N-341 or 411 or the equivalent may not take this course for credits.

Geology N-348 (428)

Structural Geology

Prerequisites: Geology N-213, N-214. Behaviour of rock materials; description and classification of folds and fractures; evaluation of minor structural features in sedimentary, igneous and metamorphic rocks. Field trips. Lectures and laboratory. (3 credits)

NOTE: Students who have credits for Geology N-351 or 421 or the equivalent may not take this course for credits.

Geology N-349 (429)

Tectonics

Prerequisite: Geology N-348. Evolution of megastructures of the earth: orogeny; tectonic patterns and hypotheses; emplacement of plutons. Lectures only. (3 credits)

NOTE: Students who have credits for Geology N-351 or 421 or the equivalent may not take this course for credits.

Geology N-352 (422)

Photogeology

Prerequisite: Geology N-342 or permission of the Department. Scope and purpose of photo-interpretation; geometry of aerial photographs and basic applied photogrammetry; geological interpretation, both qualitative and quantitative, of aerial photographs from Canada and other countries; techniques used in base map preparation with and without control points; exercises in photogeological mapping using stereoscopes and plotters. Lectures and laboratory. (3 credits)

Geology N-353 (423)

Field Geology

Prerequisite: Geology N-352. Two-week field school in May to be taken after the 2nd year final examination period. Surface surveying methods; scope and organization of field work; students are required to prepare a geological map, sections and reports on field notes and aerial photographs. Group study of important outcrops; visits to local quarries and mines. Students will be expected to pay minimum amount of their room and board. (3 credits)

Geology N-420 (223)

Paleontology

A study of the evolution of plants, invertebrates and vertebrates in time and space, the fossil record; preservation, identification and classification of fossils; methods and techniques. Lectures and laboratory. (3 credits)

Geology N-421 (430)

Geology of Canada

Prerequisites: Geology N-213, N-214, N-322 and N-342. The study of the geology, physical features and mineral resources of the five main natural regions of Canada. A number of selected areas will be examined in detail. Lectures only. (3 credits)

Geology N-460 (440)

Economic Mineral Deposits

Prerequisites: Geology N-322 and N-342. Nature, origin, mode of occurrence and classification of important metallic and non-metallic deposits; geographical distribution and outstanding occurrences. Integrated hand specimen and microscope (transmitted and reflected light) examination of representative samples from important mining camps. Lectures and laboratory. (6 credits)

Geology N-461 (441)

Geophysical Exploration

Prerequisites: Geology N-213, N-214 and N-231 or permission of the Department. A brief study of the principles of magnetic, gravimetric, electric and seismic methods of mineral exploration; interpretation of geophysical data; organization of exploration programmes; selected case histories. Lectures and laboratory. (3 credits)

Geology N-462 (442)

Geochemical Exploration

Prerequisites: Geology N-214 and N-231 or permission of the Department. Basic principles; primary and secondary dispersion processes and their significance in geochemical exploration; field and analytical techniques (one field excursion early in the fall term); interpretation of geochemical data; organization of exploration programmes; selected case histories. Lectures and laboratory. (3 credits)

Department of Mathematics

Professor & Chairman of the Department
Victor Byers

Professor & Assistant Dean
Frederick W. Bedford

Professors
Martin Harrow
Norman Edward Smith

Visiting Professors
Charles Fox
John McNamee
H. Rizvi
Edna Vowles

Associate Professors
Kailash K. Anand
Mary A. Brian
G.E. Cohen
T. Dwivedi
R.L. Hall
James C. Hayes
N. Herscovics
G.S. Lingappaiah
M.A. Malik

Eugen A. Pollitzer
John Senez
Manfred E. Szabo
J.C. Turgeon
M. Zaki

Assistant Professors
Leonda S. Adler
Morton M. Belinsky
A. Boyarsky
Josef Brody
W.P. Byers
Maurice Cohen
L. Dube
J. Fiksel
Joel Hillel
H. Hung
M. Kanter
M. Kervin
Z. Khalil
R. Moore
Joan Pelletier
Harold W. Proppe
R. Raphael
Y.H. Wang

Sessional Lecturer
M. Alberta Boswall

Students are responsible for satisfying their particular degree requirements, hence the following sequence *must* be read in conjunction with pages 196-201.

Mathematics: major

The following courses, in an approved sequence, constitute a major in Mathematics:

Mathematics N-241, N-261, N-271*, N-281, N-291*, N-361, N-391* and 15 additional credits in Mathematics, or the equivalent, approved by the Department.

Students who major in Mathematics must register by November 1 of each year with the Department of Mathematics.

Applied Mathematics (Optimization): major

The following courses, in an approved sequence constitute a major in Applied Mathematics (Optimization):

Mathematics N-241, N-261, N-271*, N-281, N-291*, N-312*, N-331, N-351*, N-431 and 6 additional credits in Mathematics or a related field approved by the Department.

Students who major in Applied Mathematics must register by November 1 of each year with the Department of Mathematics.

Mathematics: honours

The following courses constitute an honours programme in Mathematics, provided the student maintains the required academic standing:

First Year: Mathematics N-241, N-261, N-271*, N-281, N-291*.

Second Year: Mathematics N-361, N-366*, N-371*, N-381*, N-391*.

Third Year: Mathematics N-461, N-466*, N-467*, N-491*, N-492*.

Twelve credits in second and third years chosen from among: Mathematics N-311*, N-312*, N-321*, N-322*, N-331, N-351*, N-392*, N-431, N-432*, N-451*, N-471*, N-475*; courses in related fields with prior Departmental approval.

NOTE: Students with a strong interest in Applied Mathematics who take Mathematics N-312, N-331, N-351* as their options may replace Mathematics N-467*, N-491*, N-492* with Mathematics N-431, N-432*.*

Statistics: major

The following courses in an approved sequence constitute a major in Statistics:

Mathematics N-241, N-261, N-271*, N-281, N-291*, N-341*, N-342*, N-343*, N-351*, N-352 and 9 additional credits in Mathematics or related fields approved by the Department. Students who major in Statistics must register by November 1 of each year with the Department.

Statistics: honours

The following courses constitute an honours programme in Statistics, provided the student maintains the required academic standing.

First Year: Mathematics N-241, N-261, N-271*, N-281, N-291*.

Second Year: Mathematics N-351*, N-352*, N-361, N-366*, N-381*, N-391*.

Third Year: Mathematics N-371*, N-451*, N-452*, N-461, N-466*.

Twelve (12) credits in second and third years chosen from among: Mathematics N-311*, N-312*, N-321*, N-331, N-341*, N-342*, N-343*, N-431, N-441*, N-467*, N-471*, N-491*, N-492*; courses in related fields with prior Departmental approval.

NOTE: Students with a strong interest in Applied Mathematics (Optimization) who take Mathematics N-312, N-331 as their options may replace either Mathematics N-371* and N-466* or N-461 with Mathematics N-431.*

Mathematics N-200 (3 credits)

Mathematics N-201 (3 credits)

Mathematics N-202 (3 credits)

Mathematics N-203 (3 credits)

Mathematics N-204 (3 credits)

Mathematics N-205 (3 credits)

Mathematics N-206 (3 credits)

Mathematics N-207 (3 credits)

Mathematics N-208 (3 credits)

Mathematics N-209 (3 credits)

Descriptions of the above courses are listed in the Faculty of Arts section of this calendar.

NOTE: Science students may not take the above Mathematics courses for credits.

Mathematics N-210

Mathematics for the Biological Sciences

Prerequisite: CEGEP Mathematics 103 or equivalent. Set theory, combinatorics, probability, matrices, differential and difference equations; applications to the biological sciences. (3 credits)

Mathematics N-241 (440)

Introductory Mathematical and Applied Statistics

Prerequisite: CEGEP Mathematics 203 or equivalent. The introductory mathematical theory of statistics including: the experimental approach to statistics, probability, distributions, moments and sampling theory, problems in estimation, hypothesis testing, correlation and regression. (6 credits)

Mathematics N-261

Advanced Calculus

Prerequisites: CEGEP Mathematics 105, 203. Methods of integration, Vector functions of a single variable, curves. Scalar functions of several variables, limits, continuity, partial derivatives, total differential. Vector functions of several variables, divergence, curl. Maxima and minima. Multiple integrals, change of variables. Line integrals, Green's theorem. Surface integrals, divergence theorem, Stokes' theorem. Applications. (6 credits)

Mathematics N-270 (452)

Differential Equations for the Natural Sciences

Prerequisite: CEGEP Mathematics 203 or equivalent. First order first degree equations, linear equations, operators, Laplace transforms, series solutions and special functions, numerical methods, elementary partial equations, Fourier series. (6 credits)

NOTE: Only 6 credits will be given for both N-270 and N-271. Students credited with N-271 and N-371 may not take this course for credits.

Mathematics N-271

Differential Equations I

Prerequisites: CEGEP Mathematics 105, 203; Mathematics N-281 previously or concurrently. First order differential equations, applications of first order differential equations. Second order linear equations, series solutions of second order linear equations, higher order linear equations, systems of equations. Difference equations. (3 credits)

Mathematics N-280**Matrix Algebra**

Prerequisites: CEGEP Mathematics 101, 105 or equivalent. The algebra of vectors and matrices with applications to linear transformations, operators, quadratic forms. This course is designed primarily for Physics students. (3 credits)

NOTE: Only 6 credits will be given for both N-280 and N-281. Students with credits for N-281 may not take this course for credits.

Mathematics N-281**Linear Algebra I**

Prerequisites: CEGEP Mathematics 101, 105 or equivalent. Vectors in R^n , matrices, linear equations, vector spaces, linear transformations, determinants, equivalence relations on matrices, characteristic values and vectors, diagonalization, metric concepts. (6 credits)

Mathematics N-291**Algebraic Systems I**

Prerequisite: Collegial pre-science mathematics profile or equivalent. Sets, relations, mappings, order, integer, rational, real and complex number fields, elementary properties of groups, rings, integral domains, fields. (3 credits)

Mathematics N-300**Number Systems**

Sets, concept of number, systems of numeration, operations, relations, mathematical systems, whole numbers, fractional numbers, integers, rationals, measurement and geometric representations. (6 credits)

NOTE: This course is available only to practising teachers. Assignments and projects are designed to be of use to teachers in the elementary system.

Mathematics N-301**Mappings**

Prerequisite: Mathematics N-300. Relations, number system, systems of numeration to bases other than 10, order axioms, inequalities, absolute value, elementary number theory, modular arithmetic, geometric representations. (6 credits)

NOTE: This course is available only to practising teachers. Assignments and projects are designed to be of use to teachers in the elementary system.

Mathematics N-311**Numerical Analysis I**

Prerequisite: Mathematics N-261 or equivalent. Introduction to computers and Fortran, solutions of equations, curve fitting, numerical differentiation and integration, matrix computation, errors. Lectures and laboratory. (3 credits)

Mathematics N-312**Numerical Linear Algebra**

Prerequisite: Mathematics N-281 or equivalent. Linear systems, matrix inversion, relaxation methods, method of least squares, G-inverses, canonical forms, determination of characteristic values, applications. (3 credits)

Mathematics N-321**Set Theory**

Prerequisites: 18 credits in post-collegial mathematics. Intuitive logic, axiomatic set theory, ordinals, axiom of choice, cardinals. (3 credits)

Mathematics N-322**Mathematical Logic**

Prerequisites: 18 credits in post-collegial mathematics. First-order theories, models, incompleteness, selected topics. (3 credits)

Mathematics N-331**Deterministic Methods of Operations Research**

Prerequisite: Mathematics N-281 or equivalent. Formulation of mathematical models in the deterministic case, methods of solution, testing the models. Applications to allocation (linear and dynamic programming, duality), competition (game theory), scheduling, networks and flow. Emphasis on mathematical methods, including matrix algebra and search techniques. (6 credits)

Mathematics N-341**Experimental Statistics**

Prerequisite: Mathematics N-241 or equivalent. Experimental models. Regression and correlation, analysis of variance. Experimental designs. Randomized blocks, Latin squares, factorial confoundings. (3 credits)

Mathematics N-342**Industrial Statistics**

Prerequisite: Mathematics N-241 or equivalent. Concepts of statistical control, \bar{X} , R , P and C charts. Acceptance sampling, sequential probability ratio tests, sampling inspection, continuous sampling plans, reliability and life tests. (3 credits)

*Mathematics N-343***Data Analysis and Survey Sampling**

Prerequisite: Mathematics N-241 or equivalent. Basic concepts of sampling. Simple, stratified, systematic, cluster sampling. Optimum allocation, ratio estimates. Curve fitting, goodness-of-fit tests, non-parametric tests, correlation and regression (bivariate and multivariate). Course time equally divided between theory and practical work. (3 credits)

*Mathematics N-351***Discrete Probability and Markov Chains**

Prerequisite: Mathematics N-241. Axiomatic approach to probability theory, Bayes' rule, occupancy, runs and matching problems. Discrete random variables and their distributions. Generating functions. Introduction to Markov chains and queues. (3 credits)

*Mathematics N-352***Mathematical Statistics**

Prerequisites: Mathematics N-241, N-261. Introduction to multivariate distributions, sampling distributions, point and interval estimation, tests of hypotheses (parametric and non-parametric), regression models. (3 credits)

*Mathematics N-353***Stochastic Processes and Applications**

Prerequisite: Mathematics N-351. Continuous time stochastic processes. Poisson processes, continuous time Markov processes, queuing models, birth and death processes, renewal theory and reliability of systems. (3 credits)

*Mathematics N-354***Information Theory**

Prerequisite: Mathematics N-351 or equivalent or permission of Department. Information and sources, Shannon's theorem for Markov sources. Probability relations in a channel, mutual information, error probabilities and decision rules. (3 credits)

*Mathematics N-361***Real Analysis**

Prerequisites: Mathematics N-261, N-281. Metric spaces, sequences and series, continuity, differentiation, Riemann integration, uniform convergence, equicontinuity, Weierstrass theorem. Differential forms, simplexes and chains, Stokes' theorem. (6 credits)

*Mathematics N-366***Complex Analysis I**

Prerequisite: Mathematics N-261. Algebra and geometry of complex numbers, analytic functions,

Cauchy-Riemann equations, the Cauchy integral formula, Taylor's and Laurent's theorems, calculus of residues. (3 credits)

*Mathematics N-371***Differential Equations II**

Prerequisites: Mathematics N-271, N-366. Equations of hypergeometric type (Bessel's and Legendre's equation). Laplace transform, inverse transform, applications to partial and integral equations. Fourier series. Boundary value problems and Sturm-Liouville theory. (3 credits)

*Mathematics N-381***Linear Algebra II**

Prerequisites: Mathematics N-281, N-291. Matrices, linear transformations, determinants, metric concepts, inner product spaces, dual spaces, spectral theorem, bilinear and quadratic forms, canonical forms for linear transformations, matrix functions, selected topics. (3 credits)

*Mathematics N-391***Algebraic Systems II**

Prerequisite: Mathematics N-291. Groups: permutation groups, Cayley's theorem, cyclic groups, Lagrange's theorem, normal subgroups, quotient groups, isomorphism theorems. Rings: ideal and quotient rings, isomorphism theorems, characteristic. Fields: construction of quotient fields. Polynomials: polynomial rings, division algorithm, g.c.d., unique factorization, roots of a polynomial over a field. Selected topics. (3 credits)

*Mathematics 392***Elementary Number Theory**

Prerequisites: 18 credits in post-collegial mathematics. Number systems, division and factorization, number-theoretic functions, congruences, algebraic congruences and primitive roots, quadratic residues, diophantine equations. (3 credits)

*Mathematics N-401***Functions**

Prerequisite: Collegial mathematics or equivalent. Sets and logic; ordered field of real numbers; relations, function; exponential, logarithmic and trigonometric functions. (6 credits)

NOTE: This course is available only to practising teachers.

Mathematics N-404**Geometry**

Prerequisite: Collegial mathematics or equivalent. Vector spaces, linear transformations; affine geometry in the plane and 3-space; inner products; Euclidean geometry; affine subspaces; analytic geometry of lines and planes; quadratic forms; conics and quadrics; polar coordinates; parametric equations. (6 credits)

NOTE: This course is available only to practising teachers.

Mathematics N-431**Probabilistic Methods of Operations Research**

Prerequisites: (a) Mathematics N-261; N-351 previously or concurrently; (b) Mathematics 440, 452. Difference and differential-difference equations, z transforms, stochastic distributions. Markov chains, queuing theory, inventory theory, reliability and renewal theory, competition and introduction to decision theory, dynamic programming, simulation and Monte Carlo techniques; formulation, testing and stability of mathematical models incorporating uncertainty. (6 credits)

Mathematics N-432**Theory of Graphs and Networks**

Prerequisite: Mathematics N-331. Directed and undirected graphs. Partitions, planar and non-planar graphs, matrix representation, applications, network theory. (3 credits)

Mathematics N-433**Calculus of Variations**

Prerequisite: Mathematics N-371 or N-270. Nature of problems. Weak variations, the first variation, Euler's equation. The second variation, Jacobi's equation, Legendre's test, conjugate points. Relative maxima and minima, isoperimetrical problems. Integrals with variable end points. Applications to problems in pure and applied mathematics, the principle of least actions. Strong variations, the Weierstrass E-function. (3 credits)

Mathematics N-434**Optimization Theory**

Prerequisite: Permission of Department. A survey of optimization methods, search techniques, non-linear programming, dynamic programming. An introduction to optimal control and to the maximum principle. (3 credits)

Mathematics N-441**Seminar in Applied Statistics**

Prerequisite: Permission of the Department. Formulation of some real-life problems where applications of statistical methods can be exploited. Analysis, interpretation of data and inference of results. A report on a specific aspect of statistics may be required. (3 credits)

Mathematics N-451**Topics in Probability**

Prerequisites: Mathematics N-261; N-351 or permission of Department. Axioms for probability space. Random variables. Distribution functions, mathematical expectation. Law of large numbers. Limit theorems. Stochastic processes, Markov, Poisson and Gaussian Processes. (3 credits)

Mathematics N-452**Linear Statistics**

Prerequisites: Mathematics N-261, N-281, N-352. Multivariate normal distribution, distribution of quadratic forms. Linear models. General linear hypothesis of full rank. (3 credits)

Mathematics N-461**Real Analysis II**

Prerequisites: Mathematics N-361, N-391. Measure spaces, Lebesgue measure, measurable functions, Lebesgue integration, Lebesgue-Stieltjes integration. Function spaces, Ascoli-Arzelà theorem, Stone-Weierstrass theorem, Hilbert spaces, Hahn-Banach theorem. (6 credits)

Mathematics N-466**Complex Analysis II**

Prerequisite: Mathematics N-366. Analytic functions, power series, Cauchy's theorem, Moreau's and Liouville's theorems, singularities, maximum modulus principles, Rouché's theorem. Conformal mappings, linear transformations, analytic continuation. Special functions. (3 credits)

Mathematics N-467**Complex Analysis III**

Prerequisite: Mathematics N-466. Normal families, Riemann mapping theorem, harmonic functions, elliptic functions, univalent functions, selected topics. (3 credits)

Mathematics N-471**Partial Differential Equations**

Prerequisite: Mathematics N-371. Classification of partial differential equations, the Cauchy-Kowalewski theorem, characteristics, boundary

value and eigen value problems for elliptic equations, initial value and initial boundary value problems for parabolic and hyperbolic equations. (3 credits)

Mathematics N-475

Geometry and Topology

Prerequisite: Permission of Department. Topological spaces, separation axioms, compactness, connectedness. Introduction to combinatorial and algebraic topology: Euler characteristic; classification of surfaces; winding number of a curve, degree of a map, vector fields, applications; map colouring problems. (3 credits)

Mathematics N-491

Abstract Algebra I

Prerequisite: Mathematics N-391. Groups: composition series, direct product of groups, abelian groups, Sylow's theorems, solvable groups. Rings: Euclidean rings, unique factorization domains, principal ideal domains. Maximal, prime and primary ideals; ideals in noetherian rings, modules and vector spaces. Algebras. Selected topics. (3 credits)

Mathematics N-492

Abstract Algebra II

Prerequisite: Mathematics N-491. Fields: prime fields; algebraic, finite, simple, separable, inseparable, normal extensions; finite fields; perfect and imperfect fields. Group characters. Galois theory; the fundamental theorem, solvability by radicals, transcendental extensions. (3 credits)

Mathematics N-499

Mathematical Thinking

Prerequisite: Permission of Department. This course is intended to stimulate the student's mathematical creativity and to improve his ability to think systematically, analyze problems and communicate his reasoning. Students participate actively in discussing and solving problems drawn from a variety of sources (including previous Putnam competitions) and are expected to explain their thinking both orally and in writing. Discussions include the following topics: problem posing; Polya's techniques of problem solving; equivalence and similarity of problems; generalization; applications. The problems are selected from: combinatorics, geometry, group theory, number theory, real analysis, etc. (3 credits)

Physics

*Associate Professor and
Chairman of the Department*
Stanley P. Morris

Visiting Professor

Walter R. Raudorf

Associate Professors

David E. Charlton

Barry Frank

Arlin L. Kipling

John A. MacKinnon

Sushil K. Misra

Jean-Pierre Pétolas

Ramesh C. Sharma

Adolph E. Smith

Assistant Professor

Nelson W. Eddy

Students are responsible for satisfying their particular degree requirements, hence the following sequence *must* be read in conjunction with pages 196-201.

Experimental Physics: major

The following courses, in an approved sequence, constitute a major in Experimental Physics:

First Year: Physics N-241, N-251, N-291, N-292; Mathematics N-261, N-270.

Second Year: Physics N-352*, N-355, N-364*, N-392*, N-394*, N-395*.

Third Year: Physics N-433*, N-435*, N-465*, N-493*, N-495*, N-496.

Theoretical Physics: major

The following courses, in an approved sequence, constitute a major in Theoretical Physics:

First Year: Physics N-241, N-251, N-291, Mathematics N-270, N-280*.

Second Year: Physics N-336, N-345, N-364*, N-394*; Mathematics N-366*.

Third Year: Physics N-477* and 9 credits selected from Physics N-433*, N-435*, N-457, N-465*, N-467*, N-478*.

Physics: honours

The following courses constitute an honours programme in Physics, provided the student maintains the required academic standing:

First Year: Physics N-241, N-251, N-291, N-292; Mathematics N-261, N-270 and N-280*.

Second Year: Physics N-336, N-345, N-352*, N-355, N-364*, N-392*, N-394*, N-395; Mathematics N-366*.

Third Year: Physics N-433*, N-435*, N-457, N-465*, N-467*, N-477*, N-478*, N-493*, N-495*, N-496.

Physics-Marketing: major

The following courses, in an approved sequence, constitute an interdisciplinary major in Physics - Marketing:

Physics N-241, N-251, N-291, N-292, N-364*, N-394*, N-395.

Six credits from Physics N-336, N-345, N-352*, N-355*, N-392*, N-396, N-433, N-435*, N-457, N-465*, N-467*, N-477*, N-478*, N-480*, N-493*, N-495*.

Mathematics N-261 and N-270.

Quantitative Methods N-243* and N-244* or equivalent.

Computer Science N-211*.

Accountancy N-213*, N-214*, N-216*.

Management N-213*, N-214*.

Economics N-209* and N-210* or N-212.

Marketing N-213*, N-350*, N-352*.

Nine credits from Marketing N-402*, N-403*, N-452*, N-453*, N-454*, N-462*, N-463*, N-464*, N-485*, N-490*.

NOTE: All laboratory courses in Physics with one credit must be completed in a single term.

Physics N-204**Mechanics**

Prerequisite: CEGEP Mathematics 103 or equivalent, previously or concurrently.

Kinematics. Newton's Laws of Motion. Statics, dynamics. Conservation of momentum and energy. Periodic motion. Lectures only. (3 credits)

NOTE: See Physics N-224 for laboratory associated with this course.

NOTE: Science Students may not take this course for credits.

NOTE: Students who have credits for CEGEP Physics 101 or Physics 104 or the equivalent may not take this course for credits.

Physics N-205**Electricity and Magnetism**

Prerequisite: Physics N-204 or equivalent.

Electrical charge and Coulomb's Law. Electrical field and potential. Capacity. Steady state and transient currents. Electromagnetic induction and alternating currents. Lectures only. (3 credits)

NOTE: See Physics N-225 for laboratory associated with this course.

NOTE: Science Students may not take this course for credits.

NOTE: Students who have credits for CEGEP Physics 201 or Physics 105 or the equivalent may not take this course for credits.

Physics N-206**Waves and Modern Physics**

Prerequisite: Physics N-204 or equivalent.

Simple harmonic motion. Wave propagation. Superposition. Stationary waves. Doppler effect. Interference. Diffraction. Photoelectric effect. Compton effect. Bohr's atom. Radioactivity, fission, fusion. Lectures only. (3 credits)

NOTE: See Physics N-226 for laboratory associated with this course.

NOTE: Science students may not take this course for credits.

NOTE: Students who have credits for CEGEP Physics 301 or Physics 106 or equivalent may not take this course for credits.

Physics N-210 (210)**Discoveries in Physics**

A non-mathematical course in physics specifically designed for students who have had little or no experience in physics. It traces the fundamental ideas from which modern physics has emerged and attempts to develop insights into the understanding of natural phenomena. Lectures only. (6 credits)

NOTE: Science students or students who have credits for Physics 010 or 110 may not take this course for credits.

Physics N-224**Introductory Experimental Mechanics**

Prerequisite: Physics N-204 previously or concurrently or permission of the Department. A laboratory course covering fundamental experiments in classical mechanics. Experiments will include: resolution of forces, centrifugal forces and conservation of energy, pendulums. Laboratory only, 10 experiments. (1 credit)

NOTE: Students who have credits for CEGEP Physics 101 or Physics 124 or the equivalent may not take this course for credit.

Physics N-225**Introductory Experimental Electricity**

Prerequisite: Physics N-205 previously or concurrently or permission of the Department. A laboratory course covering fundamental experiments in electricity. Experiments will include Kirchhoff's Law, resistors in series and parallel, oscilloscopes, induction, AC. Laboratory only, 10 experiments. (1 credit)

NOTE: Students who have credits for CEGEP Physics 201 or Physics 125 or the equivalent may not take this course for credit.

Physics N-226**Introductory Experimental Waves and Modern Physics**

Prerequisite: Physics N-206 previously or concurrently or permission of the Department. A laboratory course covering the fundamental experiments in waves and modern physics. Experiments include spectrometer measurements, Newton's rings, and measurements involving radioactivity. Laboratory only, 10 experiments. (1 credit)

NOTE: Students who have credits for CEGEP Physics 301 or Physics 126 or the equivalent may not take this course for credit.

Physics N-241**Classical Mechanics I**

Prerequisites: Physics N-204 or equivalent, Mathematics N-261 previously or concurrently. Laws of classical mechanics, statics, kinematics, dynamics of a particle, moving reference frames, central forces, dynamics of a system of particles, dynamics of rigid bodies in a plane, Lagrange's equations. Lectures only. (6 credits)

NOTE: See Physics N-291 for associated laboratory course.

NOTE: Students who have credits for Physics N-242 may not take this course for credits.

Physics N-242 (440, 442)**Classical Mechanics**

This course is no longer offered.

It is replaced by Physics N-241 and Physics N-291.

Physics N-251**Electrodynamics I**

Prerequisites: Physics N-205 or equivalent, Mathematics N-261 previously or concurrently. Electric forces and electric fields, electric potential, capacitance, dielectric theory and behaviour, direct currents, resistance, thermoelectricity, moving charges and magnetic fields, electromagnetic induction, the magnetic properties of matter, galvanometers, transient currents, alternating current circuits, Maxwell's equations and electromagnetic waves. Lectures only. (6 credits)

Reference: H.E. Duckworth: Electricity and Magnetism (Holt, Rinehart and Winston, 1960)

NOTE: See Physics N-292 for associated laboratory course.

NOTE: Students who have credits for Physics N-252 may not take this course for credits.

Physics N-252 (452)**Electrodynamics**

This course is no longer offered.

It is replaced by Physics N-251 and Physics N-292.

Physics N-291**Experimental Mechanics I**

Prerequisite: Physics N-241 previously or concurrently. A laboratory course in mechanics. Experiments include the Kater pendulum, forced oscillations, damping and resonance, inelastic and elastic collisions. Laboratory only, 20 experiments. (2 credits)

NOTE: Students who have credits for Physics N-242 may not take this course for credits.

Physics N-292**Experimental Electrodynamics**

Prerequisite: Physics N-251 previously or concurrently. A laboratory course in electrodynamics. Experiments include electrostatic focussing, motion in crossed magnetic and electric fields, resonance, Fourier analysis, feedback, transistors, oscillators. Laboratory only, 20 experiments. (2 credits)

NOTE: Students who have credits for Physics N-252 may not take this course for credits.

*Physics N-336 (471)***Methods of Theoretical Physics**

Prerequisites: Mathematics N-261, N-270; Physics N-204 or equivalent. Sturm-Liouville Theory; stretched string, review of Fourier series, applications of Fourier series, Fourier integrals, vibrating membrane operators method of eigenfunction expansions, cylindrical functions, spherical harmonics, perturbation theory for S.L. problem. Group theory: symmetry considerations, definitions, theory of matrix representations, applications. Tensor calculus; tensor algebra, line element, covariant differentiation. Lectures only. (6 credits)

References: D.F. Lawden: *An Introduction to Tensor Calculus and Relativity* (Methuen, 1962)

I. Schensted: *Application of Group Theory to Quantum Mechanics* (Neo Press, 1965)

R.E. Collins: *Mathematical Methods for Physicists and Engineers* (Reinhold, 1968)

E. Butkov: *Mathematical Physics* (Addison-Wesley, 1968)

*Physics N-345 (441)***Advanced Classical Mechanics and Relativity**

Prerequisites: Physics N-241; Mathematics N-270 previously or concurrently. Variational principles and Lagrange's equations, kinematics of rigid body motion, rigid body motion, Hamilton's equations of motion, Canonical transformations, Hamilton-Jacobi theory, small oscillations, special relativity, mechanics of deformable bodies. Lectures only. (6 credits)

Reference: H. Goldstein: *Classical Mechanics* (Addison-Wesley, 1950)

*Physics N-352***Optics I**

Prerequisites: Mathematics N-261 and Physics N-205 or equivalent. Geometrical optics: Plane surfaces, spherical surfaces, optical instruments. Wave optics: review of simple harmonic motion, wave equation, superposition of waves, electromagnetic waves, scattering, polarization, interference-coherent sources, interference-uniform extended sources, Fresnel diffraction, waves in a dispersive medium, lasers. Lectures only. (3 credits)

References: E.A. Jenkins, H.E. White: *Fundamentals of Optics* (McGraw-Hill, 1957)

D.H. Towne: *Wave Phenomena* (Addison-Wesley, 1967)

R.H. Webb: *Elementary Wave Optics* (Academic Press, 1969)

NOTE: See *Physics N-392* for associated laboratory course.

NOTE: Students who have credits for *Physics N-353* or the equivalent may not take this course for credits.

*Physics N-353 (222)***Optics**

This course is no longer offered.

It is replaced by *Physics N-352* and *Physics N-392*.

*Physics N-354 (453)***Electronics**

This course is no longer offered.

It is replaced by *Physics N-355* and *Physics N-395*.

*Physics N-355***Electronics I**

Prerequisites: *Physics N-251*, *N-292* and *Physics N-395* previously or concurrently. Introductory concepts, AC circuit theory, electrical measuring instruments, tube theory, triode amplifier, RC coupled pentode amplifier, transformer coupled amplifier, transistor theory, modern signal processing techniques for optimal signal to noise ratios, amplifiers, oscillators, pulse and switching circuits, additional electronic devices. Lectures only. (5 credits)

References: J.J. Brophy: *Basic Electronics for Scientists* (McGraw-Hill, 1966)

U.S. Department of the Army: *Basic Theory and Application of Transistors* (Dover, 1963)

NOTE: See *Physics N-395* for associated laboratory course.

NOTE: Students who have credits for *Physics N-354* or equivalent may not take this course for credits.

*Physics N-364***Atomic Physics I**

Prerequisites: Mathematics N-261; *Physics N-206* or equivalent or permission of the Department. Kinetic theory, origin of quantum theory, electrons and ions, electromagnetic radiation, the Rutherford atom, the Bohr atom, quantum mechanics, atomic structure, molecules and solids. Lectures only. (3 credits)

References: H.A. Enge, M.R. Wehr, J.A. Richards: *Introduction to Atomic Physics* (Addison-Wesley, 1972)

F.K. Richtmyer, E.H. Kennard, J.N. Cooper: *Introduction to Modern Physics* (McGraw-Hill, 1969)

C.H. Blanchard, C.R. Burnett, R.G. Stoner, R.L. Weber: *Introduction to Modern Physics* (Prentice Hall, 1969)

R.T. Weidner, R.L. Sells: *Elementary Modern Physics* (Allyn and Bacon, 1968)

NOTE: See Physics N-394 for associated laboratory course.

NOTE: Students who have credits for Physics N-365 or equivalent may not take this course for credits.

Physics N-365 (Half of 461)

Atomic Physics

This course is no longer offered.

It is replaced by Physics N-364 and Physics N-394.

Physics N-392

Experimental Optics I

Prerequisite: Physics N-352 previously or concurrently. An experimental course in optics. Experiments include diffraction, optical instruments, resonance and various experiments using lasers. Laboratory only, 10 experiments. (1 credit)

NOTE: Students who have credits for Physics N-353 may not take this course for credit.

Physics N-394

Experimental Atomic Physics I

Prerequisites: Physics N-364 previously or concurrently, Physics N-226 or equivalent. An experimental course in atomic physics. Experiments include the Frank-Hertz experiment, the Zeeman effect, Mass spectrometer and some X-ray work. Laboratory only, 10 experiments. (1 credit)

NOTE: Students who have credits for Physics N-365 may not take this course for credit.

Physics N-395

Experimental Electronics I

Prerequisite: Physics 205 or equivalent. A practical laboratory course in electronics which begins with simple circuitry such as resistors in series and parallel and develops to diode logic gates. Topics included are resonance circuits,

rectifiers, use of the oscilloscope, dc amplifiers, field effect transistors, operational amplifiers. Laboratory only. (4 credits)

NOTE: Students who have credits for Physics N-354 may not take this course for credits.

Physics N-396

Experimental Electronics II

Prerequisite: Physics N-395. A continuation of Physics N-395. This laboratory will develop from digital electronic techniques to their use in a small digital computer. Laboratory only. (5 credits)

Physics N-433

Thermodynamics I

Prerequisites: Mathematics N-261, N-270; Physics N-241 or equivalent. Temperature, simple thermodynamic systems, work, heat and first law, ideal gases, kinetic theory, heat engines, reversible and irreversible processes, entropy, thermodynamic potentials. Lectures only. (3 credits)

Reference: M.W. Zemansky: *Heat and Thermodynamics* (McGraw-Hill, 1968)

NOTE: See Physics N-493 for associated laboratory course.

NOTE: Students who have credits for Physics N-434 may not take this course for credits.

Physics N-434 (232)

Thermodynamics

This course is no longer offered.

It is replaced by Physics N-433 and Physics N-493.

Physics N-435

Statistical Physics

Prerequisite: Physics N-433 or equivalent. Basic probability concepts, statistical description of systems of particles, thermal interaction, microscopic theory and macroscopic measurements, Canonical distribution in the classical approximation, general thermodynamic interaction, elementary kinetic theory of transport processes. Lectures only. (3 credits)

References: F. Reif: *Fundamentals of Statistical and Thermal Physics* (McGraw-Hill, 1965)

F. Reif: *Statistical Physics* (McGraw-Hill, 1967)

P.M. Morse: *Thermal Physics* (Benjamin, 1969)

*Physics N-457 (451)***Advanced Electrodynamics**

Prerequisites: Physics N-251 and N-336 or equivalent. Fundamentals of electromagnetics, multipole fields, the equations of Laplace and Poisson, the electromagnetic field equations, electromagnetic waves, reflection and refraction, the Lienard-Weichert potentials and radiation, radiating systems, classical electron theory, relativistic electrodynamics. Lectures only. (6 credits)

References: J.D. Jackson: *Classical Electrodynamics* (Wiley, 1962)

J.B. Marion: *Classical Electromagnetic Radiation* (Academic Press, 1965)

P. Lorrain, D. Corson: *Electromagnetic Fields and Waves* (Freeman, 1970)

J.R. Reitz, F.J. Milford: *Foundations of Electromagnetic Theory* (Addison-Wesley, 1960)

*Physics N-465***Nuclear Physics I**

Prerequisite: Physics N-364 or equivalent. Discussion of nuclear properties, deuteron, scattering, nuclear models, nuclear disintegrations, nuclear reactions, elementary particles and cosmic rays. Lectures only. (3 credits)

References: H. Enge: *Introduction to Nuclear Physics* (Addison-Wesley, 1966)

A.P. Ayra: *Fundamentals of Nuclear Physics* (Allyn and Bacon, 1966)

D. Halliday: *Introductory Nuclear Physics* (Wiley, 1955)

C.M.H. Smith: *A Textbook of Nuclear Physics* (Pergamon, 1966)

NOTE: See Physics N-495 for associated laboratory course.

NOTE: Students who have credits for Physics N-466 or equivalent may not take this course for credits.

*Physics N-466 (Half of 461)***Nuclear Physics**

This course is no longer offered.

It is replaced by Physics N-465 and Physics N-495.

*Physics N-467***Solid State Physics**

Prerequisite: Physics N-364 or equivalent or Physics N-477. Crystal structure, crystal binding, phonons and lattice vibrations, free electron fermi gas, energy bands, semiconductor crystals, superconductivity, dielectric properties, survey of magnetic properties, magnetic resonance, optical phenomena in insulators. Lectures only. (3 credits)

Reference: C. Kittel: *Introduction to Solid State Physics* (Wiley, 1966)

*Physics N-477 (Half of 472)***Quantum Mechanics I**

Prerequisite: Mathematics N-270 previously or concurrently. State functions and their interpretation, linear momentum, motion of a free particle, Schrodinger's equation. Lectures only. (3 credits)

References: D.S. Saxon: *Elementary Quantum Mechanics* (Holden-Day, 1968)

D.A. Park: *Introduction to the Quantum Theory* (McGraw-Hill, 1964)

*Physics N-478 (Half of 472)***Quantum Mechanics II**

Prerequisites: Physics N-477 and N-241 or equivalent. States of a particle in one dimension, approximation methods, systems of particles in one dimension, motion in three dimensions, angular momentum and spin. Lectures only. (3 credits)

References: D.S. Saxon: *Elementary Quantum Mechanics* (Holden-Day, 1968)

D.A. Park: *Introduction to the Quantum Theory* (McGraw-Hill, 1964)

*Physics N-480***Biophysics I**

Prerequisite: University II standing in biology, physics or biochemistry or permission of the Department. The course is introduced by briefly describing the state of knowledge on how life systems originated. The role of light, sound, electricity and magnetism in various physiological processes is studied. Practical applications. Lectures and laboratory. (4 credits)

NOTE: Students who have credits for Physics N-481 may not take this course for credits.

Physics N-481 (481)

Biophysics

This course is no longer offered.

It is replaced by Physics N-480.

Physics N-482

Biophysics II

Prerequisite: Physics N-480 or N-481 or permission of the Department. Biological oscillations on a biochemical, cellular, organ level will be treated and mathematical models will be explained. Cybernetics will be introduced and simple applications to physiological control systems given. Mechanics will be applied to the problems of form and locomotion. Irreversible thermodynamics will be applied to the problem of growth. Cancer from a biophysical viewpoint will be studied. Lectures and laboratory. (4 credits)

Physics N-493

Experimental Thermodynamics I

Prerequisite: Physics N-394 and N-465 previously or concurrently. A laboratory course in thermodynamics. Experiments include Clement and Desormes experiment, vapourisation, specific heats, liquid nitrogen boiling. Laboratory only, 10 experiments. (1 credit)

NOTE: Students who have credits for Physics N-434 may not take this course for credit.

Physics N-495

Experimental Nuclear Physics I

Prerequisite: Physics N-465 previously or concurrently. A laboratory course in nuclear physics. Experiments include gamma and beta ray spectroscopy, nuclear magnetic resonance, absolute counting, half-life determination, nuclear activities. Laboratory only, 10 experiments. (1 credit)

NOTE: Students who have credits for Physics N-466 may not take this course for credit.

Physics N-496 (491)

Methods of Experimental Physics

Prerequisites: Physics N-395 or equivalent, and N-394 or equivalent. Experiments include fundamentals of digital logic and applications of operational amplifiers, solid state and nuclear physics. Students are encouraged to propose new experiments and will have the opportunity to design and build equipment. Laboratory only. (4 credits)

Psychology

The courses in Psychology listed below are acceptable as science credits in the Bachelor of Science degree. Course descriptions can be found in the Faculty of Arts Section.

Psychology N-241 (6 credits)

Statistical Methods in Psychology A

Psychology N-242 (6 credits)

Statistical Methods in Psychology B

Psychology N-271 (6 credits)

Experimental Psychology IA

Psychology N-273 (6 credits)

Experimental Psychology IB

Psychology N-375 (3 credits)

Directed Study and Research on a Selected Topic

Psychology N-461 (6 credits)

Physiological Psychology

Psychology N-462 (6 credits)

Comparative Psychology

Psychology N-471 (6 credits)

Experimental Psychology II

Psychology N-472 (6 credits)

Advanced Experimental Problems

Faculty of Commerce and Administration

Faculty of Commerce and Administration

Major Programmes

Accountancy		Economics		Finance		General Business	
1st term	2nd term	1st term	2nd term	1st term	2nd term	1st term	2nd term
<i>First Year</i>							
Acc N-213	Acc N-214	Acc N-213	Acc N-214	Acc N-213	Acc N-214	Acc N-213	Acc N-214
Mark N-213	Acc N-216	Mark N-213	Acc N-216	Mark N-213	Acc N-216	Mark N-213	Acc N-216
Q.M. N-243	Q.M. N-244	Q.M. N-243	Q.M. N-244	Q.M. N-243	Q.M. N-244	Q.M. N-243	Q.M. N-244
Econ N-210	Econ N-209	Econ N-210	Econ N-209	Econ N-210	Econ N-209	Econ N-210	Econ N-209
Man N-213 ¹	Fin N-215	Man N-213 ¹	Fin N-215	Man N-213 ¹	Fin N-215	Man N-213 ¹	Fin N-215
<i>Second Year</i>							
Man N-340	Man N-341	Man N-340	Man N-341	Man N-340	Man N-341	Man N-340	Man N-341
Q.M. N-313	Q.M. N-314	Q.M. N-313	Q.M. N-314	Q.M. N-313	Q.M. N-314	Q.M. N-313	Q.M. N-314
Fin N-314	Mark N-350	Fin N-314	Mark N-350	Fin N-314	Mark N-350	Fin N-314	Mark N-350
Comp Sc.		Comp Sc.		Comp Sc.		Comp Sc.	
N-211 ²	Man N-345	N-211 ²	Man N-345	N-211 ²	Man N-345	N-211 ²	Man N-345
Acc N-313	Acc N-314	Econ N-311 or N-312	Econ N-311 or N-312	Econ. Elec.	Econ. Elec.	Elec. ³	Elec. ³
<i>Third Year</i>							
Man N-460	Man N-461	Man N-460	Man N-461	Man N-460	Man N-461	Man N-460	Man N-461
Man N-475	Acc N-315	Man N-475	Acc N-315	Man N-475	Acc N-315	Man N-475	Acc N-315
Acc N-441	Acc N-421	Econ N-316	Econ N-316	Fin. Elec.	Fin. Elec.	Elec. ³	Elec. ³
Acc N-432	Acc N-433	or N-318	or N-318	Fin. Elec.	Fin. Elec.	Elec. ³	Elec. ³
Elec.	Elec.	Econ. Hist.	Econ. Hist.	Elec.	Elec.	Elec.	Elec.
		Econ. Elec.	Econ. Elec.				
Total Courses							
For Majors	30		30		30		30

1. Students who have not obtained exemption or credits for Management N-214 will be required to take that course as one of their electives provided they have an open elective in their programme.

2. If student has exemptions, it is recommended that this course be taken in the first year.

3. For a major in General Business, these electives must consist of two courses (six credits) in any three of the following five disciplines: Accountancy, Finance, Management, Marketing, Quantitative Methods.

NOTE: The above table describes the major programmes in the Faculty of Commerce and Administration; for Honours Programmes refer to honours requirements.

Management		Marketing		Quant. Methods	
1st term	2nd term	1st term	2nd term	1st term	2nd term
Acc N-213 Mark N-213 Q.M. N-243 Econ N-210 Man N-213 ¹	Acc N-214 Acc N-216 Q.M. N-244 Econ N-209 Fin N-215	Acc N-213 Mark N-213 Q.M. N-243 Econ N-210 Man N-213 ¹	Acc N-214 Acc N-216 Q.M. N-244 Econ N-209 Fin N-215	Acc N-213 Mark N-213 Q.M. N-243 Econ N-210 Man N-213 ¹	Acc N-214 Acc N-216 Q.M. N-244 Econ N-209 Fin N-215
Man N-340 Q.M. N-313 Fin N-314 Comp Sc. N-211 ² Man N-368	Man N-341 Q.M. N-314 Mark N-350 Man N-345 Man N-369	Man N-340 Q.M. N-313 Fin N-314 Comp Sc. N-211 ² Mark. Elec.	Man N-341 Q.M. N-314 Mark N-350 Man N-345 Mark. N-352	Man N-340 Q.M. N-313 Fin N-314 Comp Sc. N-211 ² Q.M. N-353	Man N-341 Q.M. N-314 Mark N-350 Man N-345 Q.M. N-354
Man N-460 Man N-475 Man N-466 Man. Elec. Elec.	Man N-461 Acc N-315 Man N-467 Man. Elec. Elec.	Man N-460 Man N-475 Mark. Elec. Mark. Elec. Elec.	Man N-461 Acc N-315 Mark. N-440 Mark. Elec. Elec.	Man N-460 Man N-475 Q.M. N-425 Q.M. Elec. Elec.	Man N-461 Acc N-315 Q.M. Elec. Q.M. Elec. Elec.
30		30		30	

Commerce & Administration

Dean

Andrew Berczi

Assistant Dean-Administrative Affairs

Harvey Mann

Assistant Dean-Student Affairs

Roland O. Wills

Members of the Commerce and Administration Consultative Committee are listed at the end of this section.

Philosophy of the Commerce Programme

This faculty is engaged in the education of students for business life. It is our intention to graduate students liberally educated about business. To accomplish this we have designed a multi-disciplinary and inter-disciplinary curriculum which is intellectually challenging.

The first year of the programme is intended to provide an informative accumulation of operational attitudes, skills and tools which form the base for the core concentration.

The core concentration in the second year attempts to give broad experience in all phases of business in a co-ordinated, analytical and reflective period of study. All the resources of the student's intellectual ability are combined with his inter-disciplinary studies to analyze, formulate, judge, and solve challenging business situations.

The last year of the programme is intended to provide the student with an opportunity to immerse himself in an area of specialized study. In addition, the student participates in a course which is designed to test his ability to integrate his knowledge and to view the study of business as a whole.

In view of this design all students must follow the sequence of courses on the basis of an academic year as outlined in the curriculum. No student will be permitted to register for second or third year courses without having completed the courses of the first academic year. Exceptions may be authorized in writing for valid reasons by the Dean or the Assistant Dean - Student Affairs.

Admissions Requirements

General admission requirements are listed on page 38

Specific requirements for admission to the Faculty of Commerce & Administration for

students in CEGEP are two semester courses in mathematics - College Algebra and Introduction to Calculus. Arrangements will be made in the first-year programme to give special instruction to those students who lack adequate mathematical preparation.

Degree Requirements

To obtain the degree of Bachelor of Commerce, all students are required to follow either a major or an honours programme. Ninety credits are required for a major or honours. Students registered prior to June 1, 1974 refer to New Credit Programme (Transition) below.

Major and honours programmes are available in each of the following areas:

Accountancy
Economics
Finance
General Business
Management
Marketing
Quantitative Methods

To graduate with a major requires successful completion of all prescribed courses, while graduation with honours requires, in addition, a high level of academic performance. The regulations governing qualifications for an honours degree are given below.

Students will indicate their preferred field of concentration, either major or honours, at the time of application for entry. It should be noted, however, that since the programme of study of the first year is common to all programmes, students may change to another programme, provided, of course, that the capacity of the programme permits it.

The table on page 232 gives complete details of the requirements of each programme.

New Credit Programme (Transition)

The Senate has approved a change in the Bachelor of Commerce programme reducing the credit requirements from 102 to 90 credits. This new 90 credit programme (see page 234) will become effective June 1st, 1974 and the following is a brief summary of the implementation schedule.

1. All students (Day and Evening) first entering the Bachelor of Commerce programme after June 1st, 1974 will register in the new 90 credit programme.

2. Students who entered the Day Division in September 1973 will take a transitional programme of 96 credits. This 96 credit programme will consist of the new 90 credit programme plus 2 courses of any of the following four 3 credit courses:

Management 214
Management 215
Management 346
Management 476

3. Students who entered the Day Division prior to September 1973 will complete the 102 credit programme in which they are currently registered.

4. Students enrolled in the Evening Division will be categorized according to the number of credits obtained by May 1973:

A. Students who have completed 60 credits, i.e. 20 half courses (or their equivalent) by May 1973 will be required to complete the "old" programme in which they are currently registered.

B. Students who had less than 60 credits on May 31st, 1973 will be allowed to transfer into the new 90 credit programme.

NOTE: The student is responsible for following the correct sequence of courses required for the completion of a particular programme.

Honours Programme

The university has approved programmes leading to an honours degree in certain selected fields. An honours degree indicates specialization within a field, and high academic standing. In order to qualify for an honours degree a student must meet all of the academic qualifications and comply with the regulations set forth below.

1. A candidate for an honours degree should indicate such intention at registration and consult the honours representative of the department(s) concerned as soon as possible. Acceptance as an honours student will depend on performance during the first year. The honours standing will be reviewed annually.

A student who has followed the courses prescribed for the honours programme and has met all the requirements may enter the programme with the approval of the honours representative any time before beginning the final five courses. No retroactive approval of entry may be made.

2. A student who enters with advanced standing may apply pro tanto credits which are applicable to the honours degree requirements, upon approval by the department(s).

A transfer student must complete a minimum of thirty credits in the basic honours programme in residence to receive a degree with honours.

3. An honours student must maintain a 'B' average with no grade lower than 'C' in all courses in the basic honours programme.

An honours student must meet the general degree requirements as well as the specific requirements for an honours degree, and must obtain at least a 'C' average over the total degree programme.

Failure in any course will mean suspension or withdrawal from the honours programme. Students who fail to meet acceptance requirements or who are required to withdraw from the honours programme will proceed as majors. Reinstatement into the honours programme is possible only by recommendation by the honours representative.

4. A student shall be allowed to qualify for only one honours degree in either a single or combined honours programme.

5. A degree with honours in any programme is granted upon graduation only with the approval of the Senate.

Requirements for Honours**Accountancy**

The following courses constitute an honours programme in Accountancy, provided the student maintains the required academic standing:

First Year: Accountancy N-213, N-214 and N-216; Finance N-215; Management N-213.

Second Year: Accountancy N-313, N-314; Finance N-314; Management N-340; Quantitative Methods N-313 and N-314.

Third Year: Accountancy N-315, N-421, N-432, N-433 and N-441; Quantitative Methods N-423 and N-424.

Business

The following courses constitute an honours programme in Business, provided the student maintains the required academic standing:

First Year: Accountancy N-216; Finance N-215; Management N-213 and N-214; Marketing N-213.

Second Year: Quantitative Methods N-313 and N-314; Marketing N-350; Finance N-314.

Third Year: Accountancy N-315; Management N-460 and N-461; six credits at the '400' level of any three of: Accountancy, Finance, Management, Marketing, Quantitative Methods.

Economics

The following courses constitute an honours programme in Economics, provided the student maintains the required academic standing.

Pattern C (for students in the Faculty of Commerce and Administration)

NOTE: Students who have not completed six credits in calculus prior to their admission to this programme must make up the deficiency.

Economics N-209 and N-210 or N-212 (213); N-311 (411) or N-312 (413); N-318 (452); N-415 (421); Accountancy N-213; N-214 (211); Quantitative Methods N-243; N-244 (242); One economic history course chosen from among: Economics N-330 (221), N-430 (420), N-434 (424), N-438 (428); Finance N-215, N-314.

Finance

The following courses constitute an honours programme in Finance, provided the student maintains the required academic standing:

First Year: Accountancy N-213, N-214 and N-216; Finance N-215.

Second Year: Quantitative Methods N-313 and N-314; Finance N-314; Economics N-311 or N-316.

Third Year: Accountancy N-315; Any six (6) of the following: Finance N-417, N-418, N-430, N-431, N-440, N-441, N-450, N-455, N-460, N-461.

In addition students must take Economics N-209 and N-210 or N-212 or the equivalent.

Management

The following courses constitute an honours programme in Management, provided the student maintains the required academic standing:

First Year: Finance N-215; Management N-213.

Second Year: Management N-340, N-341, N-345, N-346, N-368 and N-369; Marketing N-350; Quantitative Methods N-313 and N-314.

Third Year: Management N-460, N-461, N-466, N-467, N-475 and N-476 plus any two of the following: Management N-462, N-463, N-464 and N-465.

Marketing

The following courses constitute an honours programme in Marketing, provided the student maintains the required academic standing:

First Year: Accountancy N-216; Finance N-215; Management N-213; Marketing N-213.

Second Year: Quantitative Methods N-313 and N-314; Marketing N-350 and N-352; plus one of: Marketing N-402, N-403, N-452, N-453, N-454, N-463 or N-464.

Third Year: Accountancy N-315; Management N-476, Marketing N-490 and any four of: Marketing N-402, N-403, N-452, N-453, N-454, N-462, N-463 or N-464.

In addition, students must take Economics N-209 and N-210 or N-212 or the equivalent.

Quantitative Methods

The following courses constitute an honours programme in Quantitative Methods, provided the student maintains the required academic standing:

First Year: Accountancy N-213, N-214 and N-216; Finance N-215; Quantitative Methods N-243 and N-244.

Second Year: Quantitative Methods N-313, N-314, N-353 and N-354; Finance N-314; Computer Science N-211.

Third Year: Accountancy N-315; Quantitative Methods N-425 and N-426; any four of: Quantitative Methods N-415, N-423, N-424, N-433, N-445, N-446.

Failures

Students are cautioned that a failure in a first term course will prohibit them from proceeding to a second term course for which the first is a prerequisite. Students who find themselves in this position have two alternatives available:

1. They may drop the second term course and register in a section of the failed course, if available.
2. They may drop the second term course and apply to write the supplemental examination (in March for potential graduates and in July for others) if they are eligible to do so. In this case, students may register in another course for which they have the necessary prerequisite.

There will be a course change period at the beginning of the second term at which time students falling in the above categories must make arrangements with the Office of the Registrar for the necessary course changes.

French Language

The business community, as well as governments, now express a preference for university graduates who are bilingual. We, therefore, advise all students to take advantage of the opportunities available during their years at this university to ensure that they are bilingual when they present themselves for employment upon graduation.

Courses

Notice to Non-Commerce Students

Students not registered in the Faculty of Commerce & Administration, who wish to undertake any courses offered by the faculty,

but do not have the stated prerequisites, must obtain permission in writing from the chairman of the department concerned, *prior to registration.*

Accountancy

Professor and Chairman of the Department
James G. Finnie

Associate Professors

G. Robert Curnew
Adam Dickie
Frank P. Dougherty
Harvey Mann

Assistant Professors

E. Brian Markland
Wolfram E. Pietzsch

Visiting Associate Professor
Horace Domigan

Accountancy N-213

Financial I

This course is an introduction to the modern procedures used in the provision of financial information about an economic entity, usually a business enterprise, taking into consideration the needs of the users of the information. The course covers the fundamental principles involved in the preparation of reports and statements. Lectures and Lab. (3 credits)

NOTE: Students who have credits for Accountancy 211 may not take this course for credits.

Accountancy N-214

Financial II

Prerequisite: Accountancy N-213 or equivalent. This course continues the study of the material in Accountancy N-213. Lectures and Lab. (3 credits)

NOTE: Students who have credits for Accountancy 211 may not take this course for credits.

Accountancy N-216

Managerial I

Prerequisite: Accountancy N-213 or equivalent. This course is an introduction to the principles, and to the development of accounting information for the use of management. (3 credits)

NOTE: Students who have credits for Management 411 or Finance 416 may not take this course for credits.

Accountancy N-313**Intermediate**

Prerequisites: Accountancy N-214 and N-216, or equivalent. This is a course continuing at a more advanced level, integrating the first year work with more advanced theory and application, with emphasis on analytic method and interpretative processes, and relating particularly to procedural development while giving consideration to the requirements of the companies acts. Lectures and Lab. (3 credits)

NOTE: Students who have credits for Accountancy 411 may not take this course for credits.

Accountancy N-314**Advanced**

Prerequisite: Accountancy N-313 or equivalent. This is an advanced course covering the formation and maintenance, the expansion and contraction, and the liquidation of business organizations, including partnerships, limited companies, estates and trusts. Lectures and Lab. (3 credits)

NOTE: Students who have credits for Accountancy 412 may not take this course for credits.

Accountancy N-315**Managerial II**

Prerequisites: Accountancy N-214 and N-216 or equivalent. This course is an introduction to systems theory as applied to the development of information for use by management. (3 credits)

NOTE: Students who have credits for Management 411 or Finance 416 or Accountancy N-215 may not take this course for credits.

Accountancy N-421**Cost Accounting (Introductory)**

Prerequisite: Accountancy N-313 or equivalent. This course provides a knowledge of the fundamentals of cost accounting together with the latest procedures and cost accounting systems. (3 credits)

NOTE: Students who have credits for Accountancy 421 may not take this course for credits.

Accountancy N-422**Cost Accounting (Advanced)**

Prerequisite: Accountancy N-421 or equivalent. This course continues at an advanced level the study of modern cost accounting systems; and emphasizes the contemporary problems facing

cost accountants, and their potential solutions by the use of sophisticated techniques. (3 credits)

NOTE: Students who have credits for Accountancy 422 may not take this course for credits.

Accountancy N-432**Auditing (Introductory)**

Prerequisite: Accountancy N-314 or equivalent. This course involves the study of the principles underlying the practice of auditing: the types of audits and examinations, the qualifications of an auditor, and auditing business transactions. (3 credits)

NOTE: Students who have credits for Accountancy 431 may not take this course for credits.

Accountancy N-433**Auditing and Investigations**

Prerequisite: Accountancy N-432 or equivalent. This course involves the study of the legal duties and responsibilities of auditors and auditors' reports and certificates. Types of investigations are also studied. (3 credits)

NOTE: Students who have credits for Accountancy 431 may not take this course for credits.

Accountancy N-441**Taxation**

Prerequisite: Accountancy N-214 or equivalent. This course is designed to give authentic and up-to-date information on one of the major factors in business today. Topics covered include company and personal income taxes and a survey of sales taxes, estate taxes and succession duties and other levies. (3 credits)

NOTE: Students who have credits for Commercial Law 441 may not take this course for credits.

Accountancy N-451**Machine Accountancy**

Prerequisite: Accountancy N-214 or N-216 or equivalent. This course is an introduction to data processing concepts and their application in the production of accounting and statistical information for business management. (3 credits)

NOTE: Students who have credits for Accountancy 451 may not take this course for credits.

Accountancy N-461**Accounting Theory**

Prerequisite: Accountancy N-314.

This course covers:

1) the development of "Generally Accepted Accounting Principles" (G.A.A.P.) up to the present time; 2) the present status of G.A.A.P. as indicated by the pronouncements of the Canadian and U.S. professional accounting bodies; and 3) the basic nature of G.A.A.P., their shortcomings, and proposals for their amendment or revision. Item (3) includes the examination of price-level accounting and at least one complete model of accounting for business income. In addition to the basic texts, students will be expected to read widely in the area, especially in the various journals of the profession. (3 credits)

Administration

Administration N-201 (101)**Introduction to Administration**

This course is designed to develop a basic understanding of the role of administration in our society (the efficient organization and employment of people in the techno-structure). (3 credits)

NOTE: Commerce and Administration students may not take this course for credits.

Administration N-202 (102)**Perspective on Business**

This course is designed to review the historical development of business (in Canada in particular) and to examine the relationships between the firm (management) and the owners, the employees, the customers, the government and the community. Further, It studies some of the problems facing Canadian business today: the dehumanizing aspect, pollution problems, large vs. small firms, foreign ownership, competition, etc. (3 credits)

NOTE: Commerce and Administration students may not take this course for credits.

Economics

The courses in Economics available to Commerce and Administration students may be found in the Arts Faculty Section beginning on page 156.

Finance

Professor and Chairman of the Department
C. C. Potter

Associate Professor
Michael Kawaja

Assistant Professors
J. Bart
L. Kryzanowski
S.J. Silverton

Lecturer
Y. Geyikdagi

Special Lecturer
Wm. T.G. Hackett

Visiting Associate Professor
A.R. Ilano

Finance N-215**Introduction to Finance**

Prerequisites: Economics N-210 or equivalent, Accountancy N-214 previously or concurrently, and Accountancy N-216 previously or concurrently. This is a survey of the behaviour of money and capital markets, financial standards and forecasting, the theory of interest, capital expenditure decisions and long-term financing instruments.

NOTE: Students who have credits for Finance 413 or 315 may not take this course for credits.

Finance N-314**Financial Management**

Prerequisites: Finance N-215 and Economics N-209 or equivalent. This is a survey of current asset management, short and intermediate term financing, financial structure and valuation, dividend policy, mergers, acquisitions, failures and reorganizations.

NOTE: Students who have credits for Finance 413 may not take this course for credits.

Finance N-417**Capital Budgeting Theory**

Prerequisite: Finance N-314. An examination of the criteria for efficient investments and optimum financial budgeting. (3 credits)

NOTE: Students who have credits for Finance 416 may not take this course for credits.

Finance N-418**Cost Benefit Analysis**

Prerequisite: Finance N-314. Private and public resource investment and associated problems. (3 credits)

NOTE: Students who have credits for Finance 416 may not take this course for credits.

Finance N-430**Financial Management I**

Prerequisite: Finance N-314. A study of the role and responsibility of the senior financial officer in the achievement of current control through operational finance. A variety of case studies is used to encourage the student to develop a critical approach to the subject. (3 credits)

NOTE: Students who have credits for Finance 424 may not take this course for credits.

Finance N-431**Financial Management II**

Prerequisites: Finance N-314 and N-340. A study of the role and responsibility of the senior financial officer in the achievement of 'current control' and 'performance review' through operational finance, etc. (3 credits)

NOTE: Students who have credits for Finance 424 may not take this course for credits.

Finance N-440**Finance Theory I**

Prerequisite: Finance N-314. This course will be a study of asset and liability management under conditions of uncertainty. Topics included are: concept of finance, capital and interest, theory of risk and time preferences, capitalization of the income stream, corporate growth and rate of return and capital structure mix. (3 credits)

NOTE: Students who have credits for Finance 423 or 426 may not take this course for credits.

Finance N-441**Finance Theory II**

Prerequisites: Finance N-314 and N-440. This course will be a continuation of Finance N-440 covering such topics as: dividends and the value of the corporation, cost of capital, game theory and liquidity. (3 credits)

NOTE: Students who have credits for Finance 423 or 426 may not take this course for credits.

Finance N-450**Investment Analysis**

Prerequisite: Finance N-314. The examination of the workings of security markets and analytical techniques for the valuation of securities and the appraisal of portfolio management. (3 credits)

NOTE: Students who have credits for Finance 423 or 427 may not take this course for credits.

Finance N-455**Seminar in Finance**

Prerequisite: Finance N-314. This course is intended primarily for honours or major students and provides an opportunity for more intensive study in one or more specific topics in finance. The topic will vary according to the special interests of the professor and the students. (3 credits)

NOTE: Students who have credits for Finance 427 may not take this course for credits.

Finance N-460**Financial Intermediaries (National)**

Prerequisite: Finance N-314. Principles of money and credit in their application to the operations of the central bank, chartered banks, and the financial system and markets generally. (3 credits)

NOTE: Students who have credits for Finance 429 may not take this course for credits.

Finance N-461**Financial Intermediaries (Quebec)**

Prerequisites: Finance N-314 and N-460. A study of the operation of financial institutions in the province of Quebec. (3 credits)

NOTE: Students who have credits for Finance 429 may not take this course for credits.

Management

Associate Professor and Chairman of the Department
Stephen Robbins

Professors
Gunther Brink
Joseph Kelly
John Smola

Associate Professors
Ahmed Ashour
Martin Franklin
Robert Hosein
Thomas Kubicek
Henry S. Tutsch

Assistant Professors
G. Johns
Peter E. Pitsiladis
A. Sanders

Special Lecturers
J.B. Fisher
A.H. Rakhit

Management N-211
Business Law

A general survey of the law obtaining in the Province of Quebec with special emphasis on the aspects thereof relating to business and commerce. It includes a basic outline of the law of Domicile, Marriage, Persons, Property, Ownership and its modifications, Successions, Gifts and Wills, Testamentary, Executors, Contracts, Quasi-Contracts, Offences and Quasi-Offences, Privileges, Hypothecs and Prescription, and a more detailed study of the Contracts of Sale, Lease and Hire of Things and of Work, Mandate, Loan, Deposit, Partnership, Suretyship, Pledge, Insurance and an outline of the basic law applying to Negotiable Instruments, Corporations, Carriers, Bankruptcy and Winding Up, and Copyrights, Patents and Trade Marks. (3 credits)

NOTE: Commerce and Administration students may not take this course for credits. Students who have credits for Commercial Law 211 may not take this course for credits.

Management N-213
Foundations of Behaviour I

The purpose of this course is to introduce the student to psychological concepts relevant to the

study of organizational problems. Topics include: personality, interpersonal behaviour, group behaviour, perception, attitudes and motivation. (3 credits)

NOTE: Students who have credits for Psychology 011 or 211 may not take this course for credits.

Management N-214
Foundations of Behaviour II

The purpose of this course is to introduce the student to sociological concepts relevant to the study of organizational problems. The chief concepts to be studied are: role, status, intergroup behaviour, social institutions and culture. (3 credits)

NOTE: Students who have credits for Sociology 211 may not take this course for credits.

Management N-215
Research Methodology

This course attempts to give the student an awareness and understanding of the possibilities and limitations of using research methods in a business setting. Topics to be discussed include: the scientific method, experimental design, observational techniques, sources of information and writing the research report. (3 credits)

Management N-340
Organizational Behaviour I

Prerequisite: Management N-213 or N-214 or equivalent. The general purpose of Organizational Behaviour I and II is to provide the student with the opportunity to use the concepts, findings and techniques of previous behaviour courses as a basis to study organizations as socio-technical systems.

This is a laboratory course in which students are expected to improve their perceptual, analytical and problem solving skills. There are three goals:

- a) to gain an understanding of group processes through role playing and sensitivity training;
- b) to practice diagnosing organizational problems through analysis of cases;
- c) to acquire skill in using diagnosis to plan and influence organizational changes. (3 credits)

NOTE: Students who have credits for Management 430 may not take this course for credits.

Management N-341**Organizational Behaviour II**

Prerequisite: Management N-340. This course will concentrate on the treatment of an organization as a socio-technical system. The central theme will be the measurement of organization effectiveness and its dysfunctions. (3 credits)

NOTE: Students who have credits for Management 430 may not take this course for credits.

Management N-345**Production Management**

Prerequisite: Quantitative Methods N-244. The problems of design, selection and planning of operating systems are studied. Operating systems are broadly defined to include manufacturing as well as service organizations. Topics included are: forecasting, plant and warehouse location, facility location and maintenance. (3 credits)

NOTE: Students who have credits for Management 421 may not take this course for credits.

Management N-346**Scheduling and Control of Production Systems**

Prerequisite: Management N-345. Operational problems of operating systems are studied. Topics included are: inventory management, scheduling of intermittent and continuous production, production line balancing, quality control, project management. (3 credits)

NOTE: Students who have credits for Management 421 may not take this course for credits.

Management N-368**Social Aspects of Enterprise**

Prerequisite: Third year standing in any faculty. The purpose of this course is to facilitate understanding of the impact of social, economic, political and ethical environment on the process of managerial decision-making. Consideration is given to the conceptual foundations of business including the business corporation, its function and the legitimacy of its power structure. (3 credits)

NOTE: Students who have credits for Management 451 may not take this course for credits.

Management N-369**Canadian Business and its Environment**

Prerequisite: Management N-368. The purpose of this course is to examine the functioning of Canadian business and its relationships with its public, including stock-holders, consumers,

employees, labour, community and government. Major contemporary issues such as the impact of technology on people and the physical environment are examined. (3 credits)

NOTE: Students who have credits for Management 451 may not take this course for credits.

Management N-460**Business Policy I**

Prerequisites: Finance N-314, Marketing N-213, Management N-341 and N-345. This course, together with Business Policy II, is a terminal course designed to integrate the learning of the three-year programme. The emphasis will be on the process by which top management defines products, designates markets, and market segments together with the channels through which they are to be resolved, determines the means by which they are to be reached, and the means by which operations are to be financed, as well as the size and kind of organization which is to achieve these activities - the process of strategy formulation by the organization. The purpose of instruction is to develop in students a global view of the organization rather than a specialist, departmental orientation. Cases will be used extensively, and drawn from widely diversified industries. (3 credits)

NOTE: Students who have credits for Management 453 may not take this course for credits.

Management N-461**Business Policy II**

Prerequisite: Management N-460. This course will concentrate on how the strategy formulated in Business Policy I will be implemented by the organization. Organization structures will be studied in differing environments. The relationships between organization structures and the organization's strategy will be analyzed. The problems encountered by general managers as well as middle managers, in the process of the implementation of the set policies will be studied. (3 credits)

NOTE: Students who have credits for Management 453 may not take this course for credits.

Management N-462**Personnel Management I**

Prerequisite: Management N-341. The aim of this course is to provide a sound background in fundamentals, theory, principles and practice of personnel management. It will focus on the

philosophies underlying current personnel policy and practices. (3 credits)

NOTE: Students who have credits for Management 432 may not take this course for credits.

Management N-463

Personnel Management II

Prerequisite: Management N-462. The emphasis in this course will be on techniques: recruitment, selection, training, appraisal, and wage and salary administration. (3 credits)

NOTE: Students who have credits for Management 432 may not take this course for credits.

Management N-464

Labour and Industrial Relations I

Prerequisite: Management N-340 and N-341. Labour relations is a survey course designed to provide a practical and comprehensive approach to the state of labour-management relations in Canada. (3 credits)

NOTE: Students who have credits for Management 433 may not take this course for credits.

Management N-465

Collective Bargaining and Industrial Relations II

Prerequisite: Management N-464. This course is designed to help the student to look at day-to-day problems connected with negotiation and administration of collective bargaining agreements. The course puts some stress on the behavioural aspects of industrial relations. (3 credits)

NOTE: Students who have credits for Management 433 may not take this course for credits.

Management N-466

Management Theory I

Prerequisites: Management N-340 and N-341. This is an introductory course in management theory in which the student will be expected to become thoroughly familiar with management literature, terminology and principles. To this end he will examine the classical, contemporary and emerging theories in order to establish a solid conceptual framework against which management problems and their solutions can be evaluated. (3 credits)

NOTE: Students who have credits for Management 452 may not take this course for credits.

Management N-467

Management Theory II

Prerequisite: Management N-466. This course will attempt to further develop the conceptual framework which was established in Management Theory I. To this end it will examine selected management concepts and appraise their value in terms of their application to the actual practice of business. Issues such as the effect of innovation and technological change, managing the knowledge worker, organization planning and comparative management will be considered. (3 credits)

NOTE: Students who have credits for Management 452 may not take this course for credits.

Management N-475

Business Law

The purpose of this course is to examine and correlate through a functional approach the essential nature, source and meaning of the principles and rules governing business activity, more particularly commercial contracts. A detailed examination of the Quebec provincial and Canadian federal laws relating to business transactions, including persons and property, ownership, contracts in general, and the special contracts of agency, lease of real estate and moveables, bills of exchange. (3 credits)

NOTE: Students who have credits for Management 211 may not take this course for credits.

Management N-476

Business Law

Prerequisite: Management N-475. The purpose of this course is to examine the legal framework of the Canadian business organization and important areas of law relating thereto, including partnership and company law, securities regulations, loans and hypothecs, bankruptcy, insurance, carriers, anti-combines, fair employment and consumer protection legislation. (3 credits)

NOTE: Students who have credits for Management 211 may not take this course for credits.

Marketing

Associate Professor and Chairman of the Department

Vishnu Kirpalani

Professor

Bruce Mallen

Associate Professors

Kailash C. Dhawan

George S. Lane

Ronald H. Rotenberg

Assistant Professor

R.W. Sweitzer

Sessional Lecturer

J. Bock

Special Lecturer

J. Moore

Marketing N-213

Marketing and Society (Introductory)

Prerequisites: Economics N-209 and N-210 or N-212, Management 213 or 214 previously or concurrently. An analytical, non-managerial course designed to foster understanding of why marketing, a distinctly human phenomenon, exists, the role of exchange in social intercourse, and the interrelationships among the environment, man and the economic, legal and social institutions he creates to facilitate the consummation of transactions. (3 credits)

NOTE: Students who have credits for Marketing 211 and/or Marketing 411 or Marketing 421 may not take this course for credits.

Marketing N-350

Marketing Management

Prerequisites: Accountancy N-214 and Marketing N-213. An analytical course wherein the student utilizes the concepts, tools and practices used by managers in planning, establishing policies and solving marketing problems. (3 credits)

NOTE: Students who have credits for Marketing 211 and/or Marketing 411 or Marketing 421 may not take this course for credits.

Marketing N-352

Buyer Behaviour

Prerequisites: Marketing N-213, Management N-213 or N-214 and Quantitative Methods N-243 and N-244. This course analyzes the motivations, roles and behaviour of the industrial buyer and the consumer, how he and she are affected by economic, social and cultural influences, and how the marketer may model this behaviour for decision-making purposes. (3 credits)

NOTE: Students who have credits for Marketing 431 may not take this course for credits.

Marketing N-402

Marketing Intelligence

Prerequisites: Marketing N-350 and Quantitative Methods N-244. The nature and scope of marketing research methods of obtaining internal and external data, the design and use of marketing information systems, analysis of data, the preparation and evaluation of marketing research reports. (3 credits)

NOTE: Students who have credits for Marketing 412 or Marketing 451 may not take this course for credits.

Marketing N-403

Marketing Communications

Prerequisite: Marketing N-213. This course analyzes the process of communication from seller to buyer, the theories, strategies and roles of opinion formation, attitude change and persuasion, and the effects of different sources, media and messages upon both consumers and intermediate buyers. (3 credits)

NOTE: Students who have credits for Marketing 431 may not take this course for credits.

Marketing N-452

Marketing Research

Prerequisite: Marketing N-402. The application of marketing research to problem areas such as advertising, sales management and product strategy. Alternative research designs are applied to actual problems. (3 credits)

NOTE: Students who have credits for Marketing 412 or Marketing 451 may not take this course for credits.

Marketing N-453

Advertising and Sales Promotion Management

Prerequisite: Marketing N-350. The course deals with the theory and practice of advertising and

sales promotion. Through case studies, field trips and simulations the student learns how to analyze media and budgets, plan promotional campaigns, utilize research findings and evaluate advertising effectiveness. (3 credits)

NOTE: Students who have credits for Marketing 221 and/or Marketing 222 or Marketing 431 may not take this course for credits.

Marketing N-454

Sales Management

Prerequisite: Marketing N-350. The course deals with the theoretical and applied aspects of the management of personal selling. Through cases, simulations and special presentations the student learns how to recruit, select, train, organize, motivate, evaluate, compensate, supervise and control the sales force. (3 credits)

NOTE: Students who have credits for Marketing 414 or Marketing 461 may not take this course for credits.

Marketing N-462

Multinational Marketing Management

Prerequisite: Marketing N-350. In this course the student analyzes the major forms of international marketing; the impact of differing environments upon marketing policies and strategies; the segmentation of multinational markets; the development of international channel systems; the roles of marketing in developing countries, in communist countries and in integrated markets and trade blocs. (3 credits)

Marketing N-463

Retail Management

Prerequisite: Marketing N-213. This course seeks to apply the theories of marketing and administration to the retail situation. Topics to be covered include site selection for single and multi-unit retail outlets, organizing and staffing the retail operation, the wholesaler-retailer relationship, consumer behaviour in the retail situation. The impact of such new developments as consumer cooperatives, franchising, discounting and computer technology on the future of retailing will also be considered. (3 credits)

NOTE: Students who have credits for Marketing 481 may not take this course for credits.

Marketing N-464

Consumerism

Prerequisite: Marketing N-213. The current evolution of marketing and consumerism is subjected to critical evaluation and analytical review. Problem areas which may be examined include marketing costs and efficiency, the social objectives of and objections to marketing, the impact of marketing on the environment, the "pollution of advertising", ethics of marketers, and the role of government in the market place. (3 credits)

Marketing N-485

Industrial Marketing

Prerequisites: Marketing N-350 and N-352. Products and services to other industrial customers are studied, first at the technical representative and selling level, then at the product manager and new products development level, and finally at the level of industrial marketing management. (3 credits)

Marketing N-490

Marketing Policy

Prerequisites: Marketing 350 and 9 additional credits in marketing courses. A capstone course in Marketing, utilizing readings, projects and selected case studies requiring the student to incorporate concepts and techniques of previous marketing courses in determining marketing policy. (3 credits)

Marketing N-491

Special Projects Seminar

Prerequisite: Permission of the Department. Individual study or special project in marketing field. (3 credits)

Quantitative Methods

Associate Professor and Chairman of the Department
Eric N. West

Associate Professors
Dale D. Doreen
G. Pederzoli
Zoltan G. Popp
Roland O. Wills

Assistant Professors
Clarence Bayne
C. Ritz
L.A. Smith

Sessional Lecturer
Lynn Verchere

Quantitative Methods N-243
Introductory Business Statistics

Prerequisites: One CEGEP course in each of Intermediate Algebra and Calculus, or equivalent. An introductory course in business statistics which includes: descriptive measures; index numbers; frequency distribution analysis; probability theory; theoretical discrete and continuous distributions; point and confidence interval estimation; elementary hypothesis testing. Applications in administration and management will be emphasized (finance, marketing, etc.). Lectures and lab. (3 credits)

NOTE: Students who have credits for Mathematics 241, Statistics 242, Q.M. 242, may not take this course for credits.

Quantitative Methods N-244
Introductory Business Statistics II

Prerequisite: Q.M. N-243 or equivalent. This course is an extension of Q.M. N-243 which includes simple linear regression and correlation analysis, elementary forecasting and smoothing techniques, time series analysis, elementary sampling theory, acceptance sampling, quality control, and introduction to variance analysis. Applications in administration and management will be emphasized (finance, marketing, etc.). Lectures and lab. (3 credits)

NOTE: Students who have credits for Statistics 242 or Q.M. 242 may not take this course for credits.

Quantitative Methods N-313
Managerial Operations Research I

Prerequisites: Q.M. N-243 and N-244, or equivalent. This course is an introduction to managerial operations research and its role and function in executive decision. The basic areas covered include: optimization concepts and model building; decision theory (matrix and decision tree approach); game theory; utility theory; allocation theory (assignment and transportation problems); linear programming and applications. (3 credits)

NOTE: Students who have credits for Quantitative Methods 411 or Quantitative Analysis 411 may not take this course for credits.

Quantitative Methods N-314
Managerial Operations Research II

Prerequisite: Quantitative Methods N-313 or equivalent. This course is an extension of Quantitative Methods N-313. The basic areas covered include: inventory theory and control; simulation (deterministic and stochastic); sequencing and scheduling models; network theory (CPM and PERT); and applications of Markov Chains. (3 credits)

NOTE: Students who have credits for Quantitative Analysis 411 or Quantitative Methods 411 may not take this course for credits.

Quantitative Methods N-353
Mathematical Analysis for Business - Calculus

Prerequisites: One CEGEP course in each of Intermediate Algebra and Calculus or equivalent. The various applications of differential and integral calculus and the use of difference and differential equations in the functional areas of management, e.g. production, marketing, accounting, and finance, personnel administration, and purchasing will be studied. (3 credits)

NOTE: Students who have credits for Mathematics 415 may not take this course for credits.

Quantitative Methods N-354
Mathematical Analysis for Business - Matrix Algebra

Prerequisites: One CEGEP course in each of Intermediate Algebra and Calculus or equivalent. Properties and applications of matrix algebra in

the functional areas of management, e.g. production, marketing, accounting and finance, personnel administration and purchasing, will be studied. Special applications (e.g. Input-Output Analysis) will be explored. (3 credits)

NOTE: Students who have credits for Mathematics 415 may not take this course for credits.

Quantitative Methods N-415

Managerial Operations Research - Advanced

Prerequisites: Quantitative Methods N-313 and N-314, or equivalent. In this course more advanced operations research techniques are presented with special reference to their applicability to managerial decision-making. The topics include: mathematical programming (linear, non-linear, integer and dynamic); queuing theory (analytical and stimulated solutions); maintenance and replacement problems. The course will make generous use of relevant cases and will require computer applications using the real time computer terminal facilities of the university. The emphasis is on the development of the quantitative problem solving ability of the student with special regard to practical applications in production, marketing, accounting and finance, personnel, administration, purchasing, etc. (3 credits)

NOTE: Students who have credits for Quantitative Methods 412 may not take this course for credits.

Quantitative Methods N-423

Computers and Data Processing

Prerequisite: Computer Science N-211 or equivalent. This course provides an introduction to business data processing. It introduces the Common Business Oriented Language (COBOL) and concentrates on mass storage characteristics and techniques with special reference to file organization and design. Basic business applications (e.g. accounts receivable, inventory, payroll, forecasting) will be studied. (3 credits)

NOTE: Students who have credits for Quantitative Methods 421 may not take this course for credits.

Quantitative Methods N-424

Data Processing Systems and Applications

Prerequisite: Computer Science N-211 or equivalent. This course will survey and study the various currently available data processing systems and their applications (e.g. time sharing, real time, multi-programming and multi-processing, data communications, computer utilities). The selection and evaluation

of both hardware and software will be discussed. This is an appreciation course oriented towards the potential user. (3 credits)

NOTE: Students who have credits for Quantitative Methods 421 may not take this course for credits.

Quantitative Methods N-425

Business Systems Analysis and Design

Prerequisite: Computer Science 211 or equivalent. This is an introductory course in business systems theory. It will study the various characteristics and nature of business systems. System components and input-processing-output relationships will be examined and the methodology and techniques of systems design and analysis will be explored. (3 credits)

NOTE: Students who have credits for Quantitative Methods 422 may not take this course for credits.

Quantitative Methods N-426

Business Systems Simulation and Control

Prerequisite: Computer Science N-211, Quantitative Methods N-244, Quantitative Methods N-314; or equivalent. Digital simulation of stochastic and deterministic business sub-systems will be studied and executed in FORTRAN; various other simulation languages and models will be reviewed and evaluated; large scale simulation models (total system approach) and computer oriented management planning and control models will be examined. (3 credits)

NOTE: Students who have credits for Quantitative Methods 422 may not take this course for credits.

Quantitative Methods N-433

Topics in Quantitative Methods

Prerequisite: Permission of the Department. This course is intended primarily for honours or major students, and affords an opportunity for more intensive examination of one or more particular topics in quantitative methods. The specific subject will vary according to the special interest of the professor offering the course in any given year. (3 credits)

Quantitative Methods N-445

Advanced Business Statistics - Statistical Estimation

Prerequisites: Quantitative Methods N-243, and Quantitative Methods N-244, or equivalent. This course deals with multivariate analysis and sampling theory as applied to business and economic problems. It is expected that the students acquire a good working knowledge of

Quantitative Methods

Associate Professor and Chairman of the Department
Eric N. West

Associate Professors
Dale D. Doreen
G. Pederzoli
Zoltan G. Popp
Roland O. Wills

Assistant Professors
Clarence Bayne
C. Ritz
L.A. Smith

Sessional Lecturer
Lynn Verchere

Quantitative Methods N-243
Introductory Business Statistics

Prerequisites: One CEGEP course in each of Intermediate Algebra and Calculus, or equivalent. An introductory course in business statistics which includes: descriptive measures; index numbers; frequency distribution analysis; probability theory; theoretical discrete and continuous distributions; point and confidence interval estimation; elementary hypothesis testing. Applications in administration and management will be emphasized (finance, marketing, etc.). Lectures and lab. (3 credits)

NOTE: Students who have credits for Mathematics 241, Statistics 242, Q.M. 242, may not take this course for credits.

Quantitative Methods N-244
Introductory Business Statistics II

Prerequisite: Q.M. N-243 or equivalent. This course is an extension of Q.M. N-243 which includes simple linear regression and correlation analysis, elementary forecasting and smoothing techniques, time series analysis, elementary sampling theory, acceptance sampling, quality control, and introduction to variance analysis. Applications in administration and management will be emphasized (finance, marketing, etc.). Lectures and lab. (3 credits)

NOTE: Students who have credits for Statistics 242 or Q.M. 242 may not take this course for credits.

Quantitative Methods N-313
Managerial Operations Research I

Prerequisites: Q.M. N-243 and N-244, or equivalent. This course is an introduction to managerial operations research and its role and function in executive decision. The basic areas covered include: optimization concepts and model building; decision theory (matrix and decision tree approach); game theory; utility theory; allocation theory (assignment and transportation problems); linear programming and applications. (3 credits)

NOTE: Students who have credits for Quantitative Methods 411 or Quantitative Analysis 411 may not take this course for credits.

Quantitative Methods N-314
Managerial Operations Research II

Prerequisite: Quantitative Methods N-313 or equivalent. This course is an extension of Quantitative Methods N-313. The basic areas covered include: inventory theory and control; simulation (deterministic and stochastic); sequencing and scheduling models; network theory (CPM and PERT); and applications of Markov Chains. (3 credits)

NOTE: Students who have credits for Quantitative Analysis 411 or Quantitative Methods 411 may not take this course for credits.

Quantitative Methods N-353
Mathematical Analysis for Business - Calculus

Prerequisites: One CEGEP course in each of Intermediate Algebra and Calculus or equivalent. The various applications of differential and integral calculus and the use of difference and differential equations in the functional areas of management, e.g. production, marketing, accounting, and finance, personnel administration, and purchasing will be studied. (3 credits)

NOTE: Students who have credits for Mathematics 415 may not take this course for credits.

Quantitative Methods N-354
Mathematical Analysis for Business - Matrix Algebra

Prerequisites: One CEGEP course in each of Intermediate Algebra and Calculus or equivalent. Properties and applications of matrix algebra in

the functional areas of management, e.g. production, marketing, accounting and finance, personnel administration and purchasing, will be studied. Special applications (e.g. Input-Output Analysis) will be explored. (3 credits)

NOTE: Students who have credits for Mathematics 415 may not take this course for credits.

Quantitative Methods N-415

Managerial Operations Research - Advanced

Prerequisites: Quantitative Methods N-313 and N-314, or equivalent. In this course more advanced operations research techniques are presented with special reference to their applicability to managerial decision-making. The topics include: mathematical programming (linear, non-linear, integer and dynamic); queuing theory (analytical and stimulated solutions); maintenance and replacement problems. The course will make generous use of relevant cases and will require computer applications using the real time computer terminal facilities of the university. The emphasis is on the development of the quantitative problem solving ability of the student with special regard to practical applications in production, marketing, accounting and finance, personnel, administration, purchasing, etc. (3 credits)

NOTE: Students who have credits for Quantitative Methods 412 may not take this course for credits.

Quantitative Methods N-423

Computers and Data Processing

Prerequisite: Computer Science N-211 or equivalent. This course provides an introduction to business data processing. It introduces the Common Business Oriented Language (COBOL) and concentrates on mass storage characteristics and techniques with special reference to file organization and design. Basic business applications (e.g. accounts receivable, inventory, payroll, forecasting) will be studied. (3 credits)

NOTE: Students who have credits for Quantitative Methods 421 may not take this course for credits.

Quantitative Methods N-424

Data Processing Systems and Applications

Prerequisite: Computer Science N-211 or equivalent. This course will survey and study the various currently available data processing systems and their applications (e.g. time sharing, real time, multi-programming and multi-processing, data communications, computer utilities). The selection and evaluation

of both hardware and software will be discussed. This is an appreciation course oriented towards the potential user. (3 credits)

NOTE: Students who have credits for Quantitative Methods 421 may not take this course for credits.

Quantitative Methods N-425

Business Systems Analysis and Design

Prerequisite: Computer Science 211 or equivalent. This is an introductory course in business systems theory. It will study the various characteristics and nature of business systems. System components and input-processing-output relationships will be examined and the methodology and techniques of systems design and analysis will be explored. (3 credits)

NOTE: Students who have credits for Quantitative Methods 422 may not take this course for credits.

Quantitative Methods N-426

Business Systems Simulation and Control

Prerequisite: Computer Science N-211, Quantitative Methods N-244, Quantitative Methods N-314; or equivalent. Digital simulation of stochastic and deterministic business sub-systems will be studied and executed in FORTRAN; various other simulation languages and models will be reviewed and evaluated; large scale simulation models (total system approach) and computer oriented management planning and control models will be examined. (3 credits)

NOTE: Students who have credits for Quantitative Methods 422 may not take this course for credits.

Quantitative Methods N-433

Topics in Quantitative Methods

Prerequisite: Permission of the Department. This course is intended primarily for honours or major students, and affords an opportunity for more intensive examination of one or more particular topics in quantitative methods. The specific subject will vary according to the special interest of the professor offering the course in any given year. (3 credits)

Quantitative Methods N-445

Advanced Business Statistics - Statistical Estimation

Prerequisites: Quantitative Methods N-243, and Quantitative Methods N-244, or equivalent. This course deals with multivariate analysis and sampling theory as applied to business and economic problems. It is expected that the students acquire a good working knowledge of

these techniques through extensive use of the Quantitative Methods laboratory facilities. The course content includes: linear and non-linear multiple regression and correlation analysis; exponential smoothing, and advanced forecasting techniques; advanced sampling theory. Applications will deal with problems in the functional areas of management, e.g., production, marketing, accounting, finance, personnel administration, and purchasing. (3 credits)

NOTE: Students who have credits for Quantitative Methods 442 may not take this course for credits.

Quantitative Methods N-446

Advanced Business Statistics - Statistical Analysis

Prerequisites: Quantitative Methods 243 and Quantitative Methods 244, or equivalent. This course is complementary to Quantitative Methods 445. It will deal with various topics in statistical analysis applied to business and economic problems. The areas of application are essentially production, marketing, accounting and finance, personnel administration, and purchasing. It includes: analysis of variance; design of experiments; non-parametric statistics and introduction to factor analysis. (3 credits)

NOTE: Students who have credits for Quantitative Methods 442 may not take this course for credits.

Computer Science

Courses in Computer Science are available as electives to Commerce students. Refer to page 276 of this calendar for a complete listing.

Fine Arts

The following course in Fine Arts is available to Commerce students.

Theatre Arts N-340

Theatre Administration

A course in theatre administration covering office and plant management, production, touring, and prepackaged plant costing; contracts, insurances, budgeting and seasonal planning. Lectures with actual case studies in depth. (6 credits)

Additional Courses of Study

The following courses, administered by the Continuing Education office on behalf of the Faculty of Commerce and Administration, are offered to meet the needs of various business

organizations. They do not carry credits towards the Bachelor of Commerce degree.

Students must consult the time-table to determine which of the following courses are offered in the current academic year.

Business N-221 (221) (non-credit)

Office Management

A course in the principles of office management, including such topics as the function of the office in business; organization and principles of control; office systems and routines; office equipment and labour saving devices; office planning and layouts; selection and training of office personnel; office communications.

NOTE: This course was previously designated as Administration 221. Students who have taken Administration 221 should not take this course.

Business N-222 (222) (non-credit)

Procurement Principles

This course is designed to cover the fundamentals of purchasing policies and procedures and the organization and functions of the purchasing department in business and industry. Topics covered will include pricing, negotiation, quality and quantity determination, budgetary institutions etc., as well as the relationship between purchasing and other management functions. Class discussion and case studies are the basic method of study employed.

NOTE: This course was previously designated as Administration 442 and 443. Students who have taken Administration 442 and/or 443 should not take this course.

Business N-223 (223) (non-credit)

Business Systems

This course is designed primarily for students with practical business experience, managers, and potential systems men. It provides a panoramic view of the systems tools, techniques and equipment and relates them to practical situations arising in an enterprise in this age of change. Topics covered include: translation of management objectives into business system procedures and methods; organization planning; fact finding and related tools such as flow charting, work measurement, information requirement studies; selling implementation and management of system and organization changes including planning, presentation and documentation tools such as a critical path scheduling, decision table construction,

procedure writing, project control techniques; information gathering, processing, distribution and retention equipment from simple office machines to computers.

NOTE: This course was previously designated as Executive Training 441 and 442. Students who have taken Executive Training 441 and/or 442 should not take this course.

Business N-241 (241) (non-credit)
International Trade

The fundamental and practical aspects of importing and exporting, covering such subjects as trade terms and definitions, import and export regulations; export credits insurance; customs regulations; handling of export traffic; - trading documents; air cargo and air express; marine insurance; financing.

NOTE: This course was previously designated as Marketing 241. Students who have taken Marketing 241 should not take this course.

Business N-251 (251) (non-credit)
Transportation and Traffic (Introductory)

This course in freight traffic management is primarily for students who wish to specialize in this line of endeavour. It covers the practical aspects of transportation in Canada including such matters as bills of lading and shipping procedures; special services of railways; express; claims and claims preventions; freight contracts; marine insurance; customs; interpretation of the railway act and railway law.

NOTE: This course was previously designated as Marketing 251. Students who have taken Marketing 251 should not take this course.

Business N-252 (252) (non-credit)
Transportation and Traffic (Advanced)

Prerequisite: Business 251. This course in freight traffic management is primarily for students who wish to specialize in this line of endeavour. It covers the practical aspects of transportation in Canada including such matters as tariff construction and freight rate structures; condition of carriage; ocean freight contracts; marine insurance; customs; interpretation of the railway act and railway law.

NOTE: This course was previously designated as Marketing 252. Students who have taken Marketing 252 should not take this course.

Business N-260 (non-credit)
Basic Mathematics for Business

Review of elementary algebraic operations;

fractions, ratios, proportions, percentages, simple equations, arithmetic and geometric progressions, logarithms; graphical algebra; simple and compound interest; annuities, amortization and sinking funds, depreciation and bond values; simple business statistics including: the collection of statistical data, various methods of presentation including tables and graphs, the frequency distribution and its mathematical analysis including averages, measures of dispersion, measures of skewness, normal curve, and correlation.

The Institute of Chartered Accountants

A graduate of Sir George Williams University holding the Bachelor of Commerce degree (major or honours in Accountancy) may register as an apprentice with the Institute of Chartered Accountants of Quebec and may apply for exemptions based on academic achievement.

Special Certificate Programmes

There are many organizations within the business community designed to serve the needs of people working in specialized areas of business. These organizations recognize that the educational qualifications of those seeking membership must be continually upgraded. Therefore, they sponsor an Academic Certificate which may be obtained through correspondence courses or through a lecture programme.

The Faculty of Commerce and Administration cooperates with these business organizations by permitting personnel to register as independent (partial) students, and to take courses leading to a certificate to be awarded by the organization concerned.

Students must comply with the university regulations regarding dates of application and independent (partial) student entrance requirements as outlined in the university calendar. In addition to this, they must meet the requirements of the specific organization.

The credit courses taken may be applied towards the Bachelor of Commerce degree provided the student meets the admission requirements and wishes to transfer from independent (partial) status to undergraduate status after completing a certificate programme. Students are advised that they must meet the Bachelor of Commerce curriculum requirements in force at the date of transfer.

Each certificate programme has one or more special courses required to complete the programme. These courses do not carry credits toward a Bachelor's degree and are designated as non-credit courses.

Students interested in the following certificate programmes will obtain details of required courses from the organization concerned:

The Administrative Management Society
(Montreal Chapter) Inc.

The American Marketing Association (Montreal Chapter)

The Canadian Association of Purchasing Agents
(Montreal Division)

Data Processing Management Association
(Montreal Chapter)

Institute of Canadian Bankers

The Montreal Personnel Association

The Systems and Procedures Association of America (Montreal Chapter)

The following organizations suggest that students take certain courses at this university as preparation for their uniform final examinations.

The Society of Industrial and Cost Accountants of Quebec

Association of Certified General Accountants
(Quebec Division)

Association of Chartered Institute of Secretaries
(Quebec Division)

Undergraduate Commerce Degree and School of Retailing Diploma

Undergraduates who wish to receive the Bachelor of Commerce degree and the School of Retailing Diploma must follow the Major in Marketing Curriculum, choosing Marketing N-463 as an elective. The student must also work two full years in retailing before becoming eligible for the Retail Diploma. Applications for the Diploma should be accompanied by documentary evidence of the applicant's in-store progress and addressed to the Director of the School, who will award the Diploma if he is satisfied that the applicant has obtained sufficient retail experience.

Commerce & Administration Consultative Committee

The purpose of this committee is the maintenance of a continuing and constructive relationship and dialogue between the Faculty of Commerce and Administration and a broadly representative group of senior business executives. In this way the relevance of the work of the Faculty to the needs of the business community is kept under review, while the objectives, role and accomplishments of the Faculty and the qualifications of its graduates are made better known in business circles.

The personnel of the Committee comprises senior members of the business community, senior faculty representatives and also representatives of student organizations.

Chairman

William T.G. Hackett, Special Lecturer,
Department of Finance

Vice Chairman (Business)

David E. Sloan, Treasurer,
Canadian Pacific Limited

Vice Chairman (Academic)

Bruce Mallen, Chairman, Graduate Studies,
(Faculty of Commerce & Administration)

Business

Phillip P. Aspinall, Partner, McDonald Currie & Co.

Margaret E. Cameron, Vice-President and Secretary-Treasurer, McLean Budden Limited

Rupert B. Carleton, Vice-President and General Counsel, Cemp Investments Limited

Jacques Cartier, Vice-President, Marketing, Petrofina Canada Limited

F.E. Case, Chairman and Chief Executive Officer, Montreal Trust Company

Michel Cloutier, Vice-President, Administrative Services, Bombardier Limited

G.G. Dunnigan, Vice-President, Marketing, Northern Electric Distribution Co. Limited

A. Fisher, President, F.B.I. Foods Limited

Marthe Hatch, Vice-President and Research Director, Cockfield, Brown & Co. Limited

J. Peter Kohl, General Manager, The Montreal Gazette Limited

Walter J. McCarthy, Senior Vice-President, Finance, Sun Life Assurance Company of Canada

H.S. McEvoy, Vice-President, Extruded and Building Products, Alcan International Limited

Fred H. McNeil, Executive Vice-President and General Manager, Bank of Montreal

Ronald H. Perowne, President, Dominion Textile Limited

R.P. Regimbai, President, Johnson & Johnson Limited

The Hon. Maurice Sauvé, P.C., Vice-President Administration, Consolidated-Bathurst Limited

H. Arnold Steinberg, Executive Vice-President, Administration and Finance, Steinberg's Limited

Nicholas Takacsy, Vice-President and Director, Greenshields Incorporated

Orland Tropea, Vice-President, Regulatory Matters, Bell Canada

Faculty

Andrew Berczi, Dean of the Faculty of Commerce and Administration

Gunther Brink, Professor, Department of Management

James G. Finnie, Chairman, Department of Accountancy

Michael Kawaja, Associate Professor, Department of Finance

Vishnu H. Kirpalani, Chairman, Department of Marketing

George S. Lane, Chairman, Undergraduate Curriculum Committee

Calvin C. Potter, Chairman, Department of Finance

Stephen R. Robbins, Chairman, Department of Management

Eric N. West, Chairman, Department of Quantitative Methods

Roland O. Wills, Assistant Professor, Department of Quantitative Methods

Students

Robert Phaneuf, President, Commerce Students Association

Brian Bowers, President, M.B.A. Students Association

James Papastaurou, Commerce Representative, Evening Students Association

Faculty of Engineering

Faculty of Engineering

Dean

J. Clair Callaghan

Vice-Rector (Academic) and Professor of Engineering

Jack Bordan

Assistant Dean, Undergraduate Studies Engineering & Computer Science

F. Douglas Hamblin

Assistant Dean, Graduate Studies Engineering & Computer Science

J. Charles Giguère

Assistant to the Dean

George D. Xistris

Programmes leading to the degrees of Bachelor of Engineering and Bachelor of Computer Science are offered in the Faculty of Engineering. The requirements for the two degrees are different and the appropriate section in the following pages must be consulted for each.

Bachelor of Engineering Programme

Admission Requirements

General Admission requirements are listed on page 38.

Specific requirements are those contained in the CEGEP pre-Engineering profile or the equivalent in university collegial programmes, that is:

Sir George Williams University	CEGEP
Biology 001.	301
Chemistry 001.	101
002.	201
Mathematics 002.	101
003.	103
004.	105
005.	203
Physics 001.	101 or 102
002.	201 or 202
003.	301 or 302

Applications from graduates of CEGEP technology programmes will also be considered. Such applicants admitted to the undergraduate programme may be required to take certain special courses in the Evening Division.

Curriculum for the Degree of Bachelor of Engineering

The university offers a programme leading to the degree of Bachelor of Engineering in the fields of Civil, Electrical and Mechanical Engineering. To be recommended for the degree of Bachelor of

Engineering, students must satisfactorily complete all the General Requirements and all the requirements of the department in which they are registered. The General Requirements are given below and comprise a uniform group of courses, the French Language Requirement and the Graduation Regulations specified below, as well as the Academic Regulations page 57; all are common to the three departments. The individual Departmental Requirements are given in subsequent sections. They comprise a group of required courses with a group of elective courses which allow students to select part of their programme to provide some depth in an area of specialization according to their particular interests or breadth in the general field of their chosen department.

In their final undergraduate year, students with high standing may be granted permission by their department and the Engineering Graduate Studies Committee to register for a limited number of graduate courses offered by the Faculty in lieu of some courses in the undergraduate programme.

A special feature of the programme is the early introduction of a "physical systems approach" as a unifying theme, concurrent with a related sequence of laboratory work designed to emphasize a concern for the problems of measurement and associated instrumentation. Undergraduates may elect to follow programmes designed to provide modern education in the traditional engineering disciplines, or they may elect to concentrate on systems engineering in considerable depth.

Membership in the Corporation of Engineers of Quebec

The Corporation of Engineers of Quebec, at its council meeting of May 24, 1967, has fully accredited the curricula in Civil, Electrical and

Mechanical Engineering offered by Sir George Williams University. The Corporation will admit as members, graduates of these three programmes according to clause 17 of the Engineers Act and clauses 3A and 3B of the Corporation's By-Laws.

Accreditation by the Canadian Council of Professional Engineers

The Accreditation Board of the Canadian Council of Professional Engineers, as of February 14, 1969, accredited the curricula in the Departments of Civil, Electrical and Mechanical Engineering. The Board has recommended to the Constituent Associations of CCPE that graduation from the above curricula be considered as sufficient academic qualification for purposes of registration as a Professional Engineer in all Provinces & Territories in Canada. With the exception of New Brunswick and Saskatchewan, it has been confirmed that the programmes are so recognized by the Councils of the Provincial Engineering Associations and the recommendation is being considered by the Associations in New Brunswick and Saskatchewan.

Programmes of Study

Successful completion of the B.Eng. degree programme requires hard work and considerable dedication on the part of each student. Courses are presented with the expectation of an average of about two hours of "outside" work for each lecture hour and about one-half hour of "outside" work for each hour spent in the laboratory for all programmes of study.

Programmes of study are available in both the Day and Evening Divisions as described below. Students are subject to the same regulations regardless of their programme of study.

(1) Day Division

Normal arrangements in the Day Division allow students' programmes to vary such that they can expect to graduate at the end of six to eight terms of successful study after entry with the minimum admission qualifications. In view of the expected average "outside" work load stated above, students must plan their individual programmes on the basis of their academic ability and in consultation with the chairman of their department.

Industrial Parallel Studies are available in the Day Division for students who have successfully completed the First Year of the programme, or its equivalent, and whose employers are prepared to certify that they will be employed

for a maximum of 20 hours per week during Winter Sessions. Priority for Industrial Parallel Studies is given to students who have completed the First Year of the programme in the Evening Division. All students undertaking such studies must have been granted permission by the office of the Assistant Dean, Undergraduate Studies, from whom the pamphlet *Industrial Parallel Studies*, giving more detailed information, can be obtained.

(2) Evening Division

The programme of study in the Evening Division offers an opportunity for part-time study of engineering fundamentals. A limited number of courses is offered annually from those marked † in the lists on pages 255-263. Any special courses offered for graduates of CEGEP technology programmes admitted to Engineering undergraduate studies will also be offered in the Evening Division. Students will normally register for three courses per term, but they should consider their employment commitments as well as their academic ability in planning their programmes.

Evening Division students registered in the B.Eng. programme must subsequently transfer to the Day Division to complete the requirements of that degree. Applications for transfer to the Day Division will be considered when the applicant has completed the minimum first year programme of the department in which he intends to continue his studies; those approved will become effective at the start of the next Fall term.

General Requirements

Course Requirements

To be recommended for the degree of Bachelor of Engineering, students must satisfactorily complete the following courses as well as those specified by their department, as shown in subsequent sections.

E Math N-312† Calculus & Differential Equations
E Math N-332† Matrices & Advanced Calculus
E Math N-352† Complex Variables
E Math N-371† Applied Probability & Statistics

Engin N-211† Engineering Graphics
Engin N-221† Materials Science
Engin N-241† Applied Mechanics
Engin N-341† Mechanics of Materials I
Engin N-351† Thermodynamics I
Engin N-371† Physical Systems & Measurements I
Engin N-372† Physical Systems & Measurements II

Engin N-501 Engineering Economy & Practice
Engin N-510 Technical Report (1)

Two courses in Social Aspects of Engineering

*† Offered in both Day and Evening Divisions
(1) To be submitted at the beginning of the
academic year in which the student expects to
graduate.*

French Language Requirement

All undergraduates registered for the B.Eng. degree are required to pass, or be exempt from, a French language examination at some time prior to graduation. Foreign students attending the university on a student visa and students whose previous education was conducted in the French language may be exempt from this requirement by applying to the Assistant Dean, Undergraduate Studies.

Examinations will be held in the Fall and Spring terms of each year. It is recommended that students who do not have sufficient background in the French language take French N-211 during their first year of residence.

Graduation Regulations

Upon the completion of all the requirements for the B.Eng. degree, candidates will be recommended for its award provided they have a cumulative grade point average (cgpa) of at least 1.80. This average will be calculated as the ratio of the sum of the grade points obtained in the complete programme followed by the candidate to the total number of courses taken in that programme, with the following points being awarded for each grade.

Grade: A B C D
Points: 4 3 2 1

Failing grades (F, Abs, Inc, R)
0

A failing grade in a required course must have been cleared by a passing grade in that course; that is, either an S grade, or a passing grade when repeating the course. A failing grade in an elective course should have been similarly cleared, but a passing grade in a different elective may be used to clear such a failure provided registration in it was approved by the chairman of the department in which the candidate is registered.

In calculating the cgpa, the S grade removes the zero for the failing grade and counts as one point for the course. However, a failing grade not

cleared by the S grade is included in the calculation as well as the grade subsequently obtained when repeating the course or taking a substitute elective. Both a repeated course and a substitute elective are counted as additional courses in assessing the total number of courses taken. Failures in supplemental examinations have no effect on the cgpa.

First Year Programmes

All undergraduates in the B.Eng. programme must satisfactorily complete the courses listed as General Requirements above. Undergraduates are admitted to one of the Departments of Civil, Electrical or Mechanical Engineering and the first year programmes of each are shown below for students undertaking studies with the expectation of graduating in either six or eight terms. The remaining courses included in the General Requirements are taken in subsequent years.

Students admitted to the programme without previous credit for the equivalent of Computer Science N-211 (Data Processing 901) must complete that course or its equivalent before entering their second year of study in the B.Eng. programme.

Department of Civil Engineering

Six-term programme

E Math N-312
E Math N-332
E Math N-352
E Math N-371
Engin N-211
Engin N-221
Engin N-241
Engin N-341
Engin N-351
Engin N-371
Engin N-372

Eight-term programme

E Math N-312
E Math N-332
Engin N-211
Engin N-221
Engin N-241
Engin N-341
Engin N-351
Engin N-371
Engin N-372

Department of Electrical Engineering

Six-term programme

E Math N-312
E Math N-332
E Math N-352
E Math N-371
Engin N-211
Engin N-221
Engin N-241
Engin N-351
Engin N-371
Engin N-372
Elec.Eng. N-351

Eight-term programme

E Math N-312
E Math N-332
E Math N-352
Engin N-211
Engin N-221
Engin N-241
Engin N-351
Engin N-371
Engin N-372

Department of Mechanical Engineering**Six-term programme**

E Math N-312
 E Math N-332
 E Math N-352
 E Math N-371
 Engin N-211
 Engin N-221
 Engin N-241
 Engin N-341
 Engin N-351
 Engin N-371
 Engin N-372

Eight-term programme

E Math N-312
 E Math N-332
 E Math N-352
 Engin N-211
 Engin N-221
 Engin N-241
 Engin N-351
 Engin N-371
 Engin N-372

Department of Civil Engineering

*Associate Professor of Engineering and
 Chairman of the Department*
 Paul P. Fazio

Professors of Engineering

Cedric Marsh
 M.S. Troitsky
 Z.A. Zielinski

Associate Professors of Engineering

Matthew McC. Douglass
 A.S. Ramamurthy

Assistant Professors of Engineering

Atya Benzina
 H.K. Ha
 Oscar A. Pekau
 A.D. Russell

Adjunct Assistant Professor

A. Khalil

Visiting Research Associate

K. Subramanya

Civil Engineering is primarily concerned with the creation of the complex systems of constructed facilities for sound economic growth of the community. In a broad sense, the civil engineer learns to control and modify the environment effectively so as to satisfy the needs and desires of society. His responsibility for design ranges from foundations and superstructures of our common structures such as buildings, bridges, dams, tunnels, wharves, etc., to many unusual structures such as rocket installations, containment vessels for nuclear reactors, supports for radio telescopes, frameworks for aircraft. In addition the civil engineer must concern himself with the engineering aspects of water resources, rivers, harbours, irrigation and drainage; with the disposal of wastes and the control of the quality of air and water; with highways, railroads, airports and other transportation facilities; with measuring, mapping and interpreting the physical conditions of the surface of the earth; and with planning metropolitan areas and constructing and managing their public facilities.

Technical electives in the Department of Civil Engineering are offered in three broad interrelated areas. Suiting their particular professional objectives and aptitudes, students can choose electives to provide some specialization in the following areas:

1. Structural Engineering
2. Water Resources Engineering
3. Transportation Engineering

In each case, a coherent programme of scientific, technical and management subjects must be chosen.

The requirements for the award of the B.Eng. degree in the Department of Civil Engineering are shown below.

General Requirements: (see page 255)

Departmental Requirements:

E Math N-411 Transform Calculus & Partial Differential Equations
Engin N-212 Introduction to Engineering Design
Engin N-361† Fluid Mechanics I
Engin N-441 Mechanics of Materials II
Engin N-461 Fluid Mechanics II
Civ. Eng. N-421 Engineering Materials
Civ. Eng. N-431 Geology
Civ. Eng. N-451 Structural Engineering I
Civ. Eng. N-452 Structural Engineering II
Civ. Eng. N-461 Hydrology
Civ. Eng. N-471 Surveying (1)
Civ. Eng. N-472 Transportation Engineering
Civ. Eng. N-531 Soil Mechanics I
Civ. Eng. N-532 Foundations
Civ. Eng. N-551 Structural Engineering III
Civ. Eng. N-561 Hydraulic Structures
Civ. Eng. N-581 Water Supply Systems
Civ. Eng. N-582 Urban Sanitation

(1) Summer school to be taken before entering second year of study in the Faculty of Engineering.

† Offered in both Day and Evening Divisions.

Technical electives

Technical electives will be chosen from the following courses or other undergraduate courses approved by the Chairman of the Department or his representative. Six units must be obtained in either Option S, T or W with at least six from the other Options.

	Elective Units	Option
Engin N-512	3	X
Operations Research		
Engin N-541	3	X
Experimental Stress Analysis		
Civ. Eng. N-533	3	X
Soil Mechanics II		
Civ. Eng. N-552	3	X
Matrix Analysis of Structures		
Civ. Eng. N-553	3	S
Advanced Reinforced Concrete Design		
Civ. Eng. N-554	3	S
Advanced Steel Structures		
Civ. Eng. N-562	3	W
Water Resources Engineering I		
Civ. Eng. N-563	3	W
Water Resources Engineering II		
Civ. Eng. N-571	3	T
Highway Design		
Civ. Eng. N-572	3	T
Traffic Engineering		
Civ. Eng. N-573	3	X
Urban Planning		

Department of Electrical Engineering

Professor of Engineering and Chairman of the Department
M.N.S. Swamy

Professors of Engineering
Andreas Antoniou
B.B. Bhattacharyya
J. Clair Callaghan
V. Ramachandran

Associate Professors of Engineering
J. Charles Giguère
Wojciech M. Jaworski
James F. Lindsay
Bela A. Lombos
Vaclav Panuska
M. Vidyasagar

Assistant Professors of Engineering
Serge A. Gracovetsky
Otto Schwelb

Adjunct Assistant Professors
I. Kaufman
W.B. Mikhael

Research Associates
M.S. Abougal
Jean Bezivin
J.P. Koutchouk
T.V. Srinivasan
M.A.L. Thathachar

Post-Doctoral Fellow
K.S. Rao

Electrical Engineering is concerned primarily with energy and information: their conversion, transformation and transmission in the most efficient, convenient and reliable manner.

Electric motors and illumination are two aspects of electrical engineering which are easily recognized. The electrical engineer is involved not only in their design, manufacture and

application, but also in the original conversion from mechanical, thermal, solar, wind or nuclear energy to electrical form and its transmission to the place where it is required. Another important aspect of electrical engineering is in the field of information processing and transmission, for example telegraph, telephone, radio, television, radar and computers.

The activities of electrical engineers therefore may range from the generation and distribution of massive amounts of power, through information systems, computer science to various inter-disciplinary fields such as bio-medical engineering. Electrical engineers, through their various functions, therefore exert a profound influence on the cultural, social and economic life of a modern society.

The Electrical Engineering programme emphasizes the breadth of the field through a series of courses giving a unified treatment of several kinds of physical systems. Towards the end of the programme, a student may choose from a broad range of courses, groups which will allow him to obtain either a broad education in electrical engineering or to specialize to some extent in one or two specific areas.

The requirements for the award of the B. Eng. degree in the Department of Electrical Engineering are shown below.

General Requirements: (see page 255)

Departmental Requirements:

E Math N-412 Transform Calculus & Advanced Differential Equations

Engin N-471 Physical Systems & Measurements III

Engin N-472 Fundamentals of Control Systems

Elec. Eng. N-351*† Fundamentals of Electrical Engineering

Elec. Eng. N-411 Electronics I

Elec. Eng. N-412 Electronics II

Elec. Eng. N-421 Electrical Properties of Solids

Elec. Eng. N-431 Electromechanics I

Elec. Eng. N-441 Linear Network Analysis

Elec. Eng. N-442 Distributed Parameter Systems

Elec. Eng. N-451 Electromagnetic Field Theory

Elec. Eng. N-501 Electrical Engineering Seminar

Elec. Eng. N-521 Semiconductor Physics

Elec. Eng. N-561 Communication Theory

Technical Electives

Technical electives to a total of at least 24 elective units will be chosen from the following courses. All elective patterns must be approved by the Chairman of the Department or his representative. (Students admitted to the programme before September 1974 are required to obtain at least 27 elective units.)

Elective Units

E. Math N-471 Introduction to Stochastic Processes	3
E. Math N-491 Numerical Methods in Engineering Systems	3
Engin N-361 † Fluid Mechanics I	3

† Offered in both Day and Evening Divisions

* For students admitted to the programme after January 1974.

Elective Units

Engin N-511 Computer Organization & Software	4
Engin N-512 Operations Research	3
Engin N-571 Time Domain Analysis & Design	4
Engin N-572 Optimal Control	4
Engin N-573 Control System Design	4
Engin N-574 Digital Computers in Systems	4
Elec. Eng. N-432 Electromechanics II	4
Elec. Eng. N-511 Electronics III	4
Elec. Eng. N-512 Design of Logic & Switching Circuits	3.5
Elec. Eng. N-522 Semiconductor Devices Design	3.5
Elec. Eng. N-531 Electrical Power System Engineering	3.5
Elec. Eng. N-532 Generalized Machine Theory	3.5
Elec. Eng. N-541 Modern Filter Design	3.5
Elec. Eng. N-542 Digital Filters	3
Elec. Eng. N-543 Topics in Network Theory	3
Elec. Eng. N-551 Lasers and Masers	3.5
Elec. Eng. N-552 Microwave Engineering	3.5
Elec. Eng. N-562 Statistical Communication Theory	3
Elec. Eng. N-581 Electrical Engineering Project	3
Comp. Sci. N-421 Introduction to the Theory of Automata	3

Department of Mechanical Engineering

*Professor of Engineering and
Chairman of the Department*
M.P. du Plessis

Professors of Engineering
Norman F. Jennings
Hugh J. McQueen
M. O.M. Osman

Associate Professors of Engineering
Frederick B. Blader
Richard M.H. Cheng
F. Douglas Hamblin
Clyde C.K. Kwok
Thiagas S. Sankar
George D. Xistris

Assistant Professor
Sui Lin

Visiting Research Professors
Jack Belletrutti
G.M. McKinnon
P. Srinivasan

Visiting Research Associate Professor
O. Brychta

NRC Adjunct Professor
W. Hayes

Research Associates
P.M. Lee
N. Suresh
J. Svoboda

Post-Doctoral Fellows
K. Anantha
T. Kontakos
Y.C. Kuak

As in all branches of professional engineering, the mechanical engineer is concerned with the creation of devices, systems, structures and processes for human use. His task is to apply scientific, mathematical, economic and social knowledge to satisfy specific needs. The services required of mechanical engineers encompass a very wide range of professional activity, such as design, research, development and management carried out in environments of equally diverse nature, such as industry, medicine, private practice, university and government.

Representative fields of endeavour for mechanical engineers include all forms of power generating equipment (steam, internal combustion, nuclear, jet, rocket, fuel cells), the design of mechanisms and machines, controls and automation, vibration analysis, environmental control (heating, ventilation and refrigeration), materials handling and precision measurement.

Any of the specific fields may involve the design, construction and control of machines and equipment as well as the research and development of new processes, materials and techniques.

In view of the very wide range of activities in the field, the mechanical engineering curriculum consists of a combination of core courses with a series of technical electives. Strong emphasis is given to building on the principles presented in the basic engineering science and physical systems courses of the General Requirements. Further core courses are taken by all mechanical engineering undergraduates and deal with topics basic to the field, including control theory, thermodynamics, fluid mechanics, heat transfer, machine design and metallurgy. Technical electives allow students to obtain some specialization in a particular area of the field, depending on their interests and expected future professional activity. Three general areas of specialization are available, namely conventional mechanical engineering which emphasizes thermal fluid power, (Option A), design and production engineering, (Option B), and electro-mechanical systems, including control systems, (Option C).

The requirements for the award of the B. Eng. degree in the Department of Mechanical Engineering are shown below.

General Requirements (see page 255)

Departmental Requirements:

E Math N-411	Transform Calculus & Partial Differential Equations
Engin N-212	Introduction to Engineering Design
Engin N-361†	Fluid Mechanics I
Engin N-441	Mechanics of Materials II
Engin N-461	Fluid Mechanics II
Engin N-471	Physical Systems & Measurements III
Engin N-472	Fundamentals of Control Systems
Elec. Eng. N-431	Electromechanics I
Mech Eng. N-421	Heat Treatment of Metals
Mech Eng. N-422	Mechanical Properties of Metals
Mech Eng. N-441	Kinematics of Mechanisms
Mech Eng. N-442	Dynamics of Machines
Mech Eng. N-451	Thermodynamics II
Mech Eng. N-452	Heat Transfer I
Mech Eng. N-541	Machine Design I

† Offered in both Day and Evening Divisions.

Technical electives

Technical electives to a total of at least 17 elective units will be chosen from the following courses from within the same Option, A, B or C. All elective patterns must be approved by the Chairman of the Department or his representative.

	<i>Elective Units</i>	<i>Options</i>
Engin N-511	4	B,C
Computer Organization & Software		
Engin N-512	3	B
Operations Research		
Engin N-541	3	B
Experimental Stress Analysis		
Engin N-571	4	B,C
Time Domain Analysis & Design		
Engin N-572	4	C
Optimal Control		
Engin N-573	4	C
Control System Design		
Engin N-574	4	B,C
Digital Computers in Systems		
Elec. Eng. N-411	4	A,B,C
Electronics I		

Elec. Eng. N-412	4	C
Electronics II		
Elec. Eng. N-432	4	A,C
Electromechanics II		
Mech Eng. N-401	1	A,B,C
Seminar		
Mech Eng. N-501	1	A,B,C
Seminar		
Mech Eng. N-521	3	B
Manufacturing Processes		
Mech Eng. N-542	4.5	B
Machine Design II		
Mech Eng. N-543	4	A,B,C
Mechanical Vibrations		
Mech Eng. N-551	4	A,C
Thermodynamics III		
Mech Eng. N-552	4	A,C
Heat Transfer II		
Mech Eng. N-553	3	A
Environmental Control		
Mech Eng. N-554	3	A
Thermodynamics IV		
Mech Eng. N-561	4	A
Gas Dynamics		
Mech Eng. N-562	3	A
Fluid Machinery		
Mech Eng. N-581	3	A,B,C
Design or Experimental Project		

Bachelor of Computer Science Programme

Admission Requirements

General Admission requirements are listed on page 38

Specific requirements are the CEGEP level courses listed below, or the equivalent in university collegial programmes.

	Sir George Williams University	CEGEP
Mathematics 002	101	
003	103	
004	105	
005	203	

In addition, the following specific requirements exist for the various Options, and applicants are required to indicate their choice of Option in their application.

(1) The General Science and the Electronics/
Systems Options:

Sir George Williams University	CEGEP
Biology 001	301
Chemistry 001	101
002	201
Physics 001	101 or 102
002	201 or 202
003	301 or 302

(2) The General Business Option:

Sir George Williams University	CEGEP
Mathematics 006	205

NOTE: It is highly desirable that students have credit for Data Processing 901, or its equivalent, before undertaking study in any of the three Options. However, applicants not having this credit will be considered, but are strongly advised to obtain it before entering the undergraduate programme, possibly during the summer in which their application is under consideration.

**Curriculum for the Degree of Bachelor of
Computer Science**

The university offers a programme leading to the degree of Bachelor of Computer Science with three Options, namely General Science, Electronics/Systems and General Business. To be recommended for the degree of Bachelor of Computer Science, students must satisfactorily complete an approved programme of 90 credits. In assessing this total, each course of the student's programme offered by the Faculty of Engineering is assigned 3 credits, except Computer Science N-491 which is assigned 6 credits. Forty-two of the credits required must be obtained from the core requirements specified below while the remainder must be obtained from courses specified for one of the three Options.

Programmes of Study

Programmes of study are available in both the Day and Evening Divisions as described below.

(1) Day Division

The courses of all Options are offered in the Day Division and students can complete the degree requirements in three years of study by taking the normal load of 30 credits per year.

(2) Evening Division

The courses of the General Science and General Business Options are all offered in the Evening Division, allowing the completion of the degree requirements in that Division. However, as the Electronics/Systems Option includes courses offered only in the Day Division in the Bachelor

of Engineering programme, students must transfer to the Day Division to complete their last two years of study in that Option. Courses offered in the Evening Division are marked † in the following lists.

Course Requirements

To be recommended for the degree of Bachelor of Computer Science, students must satisfactorily complete the following core course as well as those specified below for their chosen Option.

Comp. Sci. N-220†	Introduction to Discrete Structures
Comp. Sci. N-221†	Introduction to Assembly Language Programming
Comp. Sci. N-222†	Introduction to Business Programming
Comp. Sci. N-223†	Computer Languages
Comp. Sci. N-301†	Computer Organization
Comp. Sci. N-302†	Computer Operating Systems
Comp. Sci. N-312†	Data and File Structures I
Comp. Sci. N-413†	Data and File Structures II
Comp. Sci. N-491†	Computer Science Project

Three credits in Numerical Calculus, such as Comp. Sci. N-320†, Mathematics N-311†, or Engineering Mathematics N-491.

An additional nine credits in Computer Science†.

General Science Option

In addition to the core courses shown above, the following courses must be completed satisfactorily.

Mathematics N-241†	Introductory Mathematical & Applied Statistics
Mathematics N-261†	Advanced Calculus
Mathematics N-281†	Linear Algebra I

Electives:

An additional three credits in Computer Science †

Twenty seven credits from the Natural or Social Sciences, Commerce and Administration, or Engineering.

Electronics/Systems Option

In addition to the core courses shown above, the following courses must be completed satisfactorily.

E Math N-312†	Calculus & Differential Equations
E Math N-332†	Matrices & Advanced Calculus
E Math N-352†	Complex Variables
E Math N-371†	Applied Probability & Statistics
E Math N-412	Transform Calculus & Advanced Differential Equations
Engin N-371†	Physical Systems & Measurements I

† Offered in both Day and Evening Divisions

Engin N-372†	Physical Systems & Measurements II
Engin N-472	Fundamentals of Control Systems
Elec. Eng. N-411	Electronics I
Elec. Eng. N-412	Electronics II
Elec. Eng. N-441	Linear Network Analysis
Elec. Eng. N-511	Electronics III
Elec. Eng. N-512	Design of Logic & Switching Circuits

Electives:

Three courses chosen from the following:

Comp. Sci. N-340†	Special Purpose Computer Systems
Engin N-471	Physical Systems & Measurements III
Engin N-571	Time Domain Analysis & Design
Engin N-572 Engin N-574	Optimal Control Digital Computers in Systems
Elec. Eng. N-541	Modern Filter Design
Elec. Eng. N-542	Digital Filters
Elec. Eng. N-543	Topics in Network Theory
Elec. Eng. N-561	Communication Theory

General Business Option

In addition to the core courses shown above, the following courses must be completed satisfactorily.

Accountancy N-213†	Financial I
Accountancy N-214†	Financial II
Accountancy N-216†	Managerial I
Accountancy N-315†	Managerial II
Economics N-209†	Introduction to Microeconomics
Economics N-210†	Introduction to Macroeconomics
Finance N-314†	Business Finance I
Finance N-315†	Business Finance II
Management N-213†	Foundations of Behaviour I
Management N-214†	Foundations of Behaviour II
Marketing N-213†	Marketing & Society (Introductory)
Marketing N-350†	Marketing Management

Quant. Meth. N-243† Introductory Business Statistics I

Quant. Meth. N-244† Introductory Business Statistics II

Quant. Meth. N-313† Managerial Operations Research I

Quant. Meth. N-314† Managerial Operations Research II

Honours Programme

An honours degree indicates specialization within a field and high academic standing. In order to qualify for an honours degree a student must meet all the academic qualifications and comply with the regulations set forth below.

1. A candidate for an honours degree should indicate such intention at registration, and consult the honours representative of the department as soon as possible. His honours standing will be reviewed annually. However, a student who has followed the courses prescribed for the honours programme, and has met all the requirements, may enter the programme with the approval of the department chairman at any time before beginning the final 30 credits. No retroactive approval of entry may be granted.

2. An honours student must meet the general degree requirements as well as the specific requirements for an honours degree, and must obtain at least a 'C' average over the total degree programme. Failure in any course will mean suspension from the honours programme. Reinstatement is possible only by recommendation by the honours representative.

3. An honours student must obtain a 'B' average with no grade lower than 'C' in all courses in the basic honours programme.

4. A student who enters with advanced standing may apply pro tanto credits, which are applicable, to the honours degree requirements, upon approval by the department.

5. A student shall be allowed to qualify for only one honours degree.

6. Honours standing in any programme is granted upon graduation only with the approval of the Senate.

Honours Committee

<i>Chairman</i>	R. Westbury
R. Angel	J.P. Zweig
B. Markland	<i>Secretary</i>
B. Slack	Mona Osborne

Departmental Representative

J.S. Kowalik

Requirements for Honours

This following courses constitute an honours programme in Computer Science provided the student maintains the required academic standing:

First Year: Computer Science N-220, N-221, N-222, N-223*; Mathematics N-241, N-261, N-281.

Second Year: Computer Science N-301, N-302, N-303, N-311, N-312; Mathematics N-271, N-351; Computer Science N-320 or Mathematics N-311.

Third Year: Computer Science N-340, N-413, N-491; Computer Science N-421 or N-430; three credits from Computer Science N-405, N-414, N-440 or N-450; six credits from Mathematics N-331, N-341, N-342, N-343, N-352 or N-434.

* *Students in First Year prior to 1974-75 will replace Computer Science N-223 with Computer Science N-310.*

Department of Computer Science

Professor and Chairman of the Department
H. Stanley Heaps

Associate Professors
Wojciech M. Jaworski
J.S. Kowalik
K.V. Leung
Graham Martin

Assistant Professors
J. William Atwood
J.T. Ellison
Terrill Fancott
A. Rudmik
C.Y. Suen

Lecturer
Wilfried G. Probst
A.S. Rao

Computer Science is concerned with the systematic study of information. This includes both the art and science of information representation and processing, particularly the techniques of processing scientific and business information through the use of electronic computers. The many fields of computer science involve such problems as the design of computer systems, the design of suitable languages and techniques for communication with computers, economic use of computers to control industrial processes, and efficient use of computers in many branches of business and commerce.

The programme offers three Options: *General Science*, *General Business*, and *Electronics/Systems*. Students must include a fixed set of core courses, but may choose an Option according to which specialized knowledge they wish to obtain in order to supplement their general background in computer science. The General Science Option is designed to give students an understanding of computer applications in scientific fields. The General Business Option is similarly designed for students who wish to have

an emphasis on business applications. The Electronics/Systems Option is intended for those students who wish to place some emphasis on computer architecture and design.

The Computer Science Department is established within the Faculty of Engineering. However, the university-wide Computer Science Committee ensures the interdisciplinary character of the Computer Science programme.

Engineering Mathematics

Engineering Mathematics N-311
**Advanced Calculus and Ordinary
Differential Equations**

Differentiation and integration of functions of several variables. Ordinary differential equations. Applications to the solution of physical systems. Numerical methods.

Lectures: 3 hours per week

Tutorial: 1 hour per week

NOTE: This course is no longer offered. See Engineering Mathematics N-312.

*Engineering Mathematics N-312***Calculus and Differential Equations**

Vector functions of one variable, with applications. Introduction to ordinary differential equations. Functions of several variables: differentiation and multiple integrals.
 Lectures: 3 hours per week
 Tutorials: 2 hours per week
 Prerequisite: Mathematics 005 or equivalent

*Engineering Mathematics N-331***Vector Analysis and Matrix Algebra**

Vector calculus. Matrices. Linear vector spaces. Linear transformation. Diagonalization of matrices. Quadratic forms. Numerical methods. Applications.
 Lectures: 3 hours per week
 Tutorial: 1 hour per week
 Prerequisite: Engineering Mathematics N-311 previously or concurrently

NOTE: This course is no longer offered. See Engineering Mathematics N-332.

*Engineering Mathematics N-332***Matrices and Advanced Calculus**

Matrix algebra, characteristic value problems, diagonalization of Hermitian matrices. Cayley-Hamilton theorem and applications, quadratic forms, vector calculus.
 Lectures: 3 hours per week
 Tutorials: 2 hours per week
 Prerequisite: Engineering Mathematics N-312 previously or concurrently

*Engineering Mathematics N-351***Complex Variables**

Functions of complex variables. Analytic functions. Cauchy's integral theorem. Series expansions. Residue theorem. Applications to integration. Conformal mapping.
 Lectures: 3 hours per week
 Prerequisites: Engineering Mathematics N-311; Engineering Mathematics N-331 previously or concurrently

NOTE: This course is no longer offered. See Engineering Mathematics N-352.

*Engineering Mathematics N-352***Complex Variables**

Algebra of complex numbers in Cartesian and polar forms; functions and inverse functions of complex variables. Derivatives and Cauchy-Riemann, analytic and harmonic functions. Exponential, trigonometric, hyperbolic and logarithmic functions. Complex line integrals,

Cauchy-Goursat theorem, Cauchy integral formula. Taylor's and Laurent's series. Residue theorem and applications.

Lectures: 3 hours per week

Prerequisites: Engineering Mathematics N-312; Engineering Mathematics N-332 previously or concurrently

*Engineering Mathematics N-371***Applied Probability and Statistics**

Elementary probability theory. Binomial, normal and Poisson distribution. Sampling and decision theory. Curve fitting. Correlation theory. Applications to the analysis of experimental results. Factorial plans.
 Lectures: 3 hours per week

*Engineering Mathematics N-411***Transform Calculus and Partial Differential Equations**

The Laplace transform: Laplace transforms and their properties, solution of linear differential equations with constant coefficients. Further theorems and their applications. The Fourier transform: orthogonal functions, expansion of a function in orthogonal functions, the Fourier series, the Fourier integral, the Fourier transform, the convolution theorem. Partial differential equations: physical foundations of partial differential equations, Introduction to boundary value problems.
 Lectures: 3 hours per week
 Prerequisites: Engineering Mathematics N-332 & N-352 or N-331 & N-351

*Engineering Mathematics N-412***Transform Calculus and Advanced Differential Equations**

Singularity functions. The Laplace transform and its inverse. Laplace transform of periodic functions. Fourier series; convergence of the series. The Fourier integral and the Fourier transform pair. Fourier transforms of functions which are not absolutely integrable. Discrete and continuous spectra. Representation of signals in time and frequency domains. Convolution in time and frequency domains. Ordinary differential equations with variable co-efficients. Power series solutions around ordinary and regular singular points. Introduction to Sturm Liouville problems. Special functions.
 Lectures: 3 hours per week
 Prerequisites: Engineering Mathematics N-332 & N-352 or N-331 & N-351

Engineering Mathematics N-471**Introduction to Stochastic Processes**

The concept of a random variable. Distribution and density functions. Functions of one random variable. Two random variables. Functions of two random variables. Properties of the multivariable normal distribution. General concepts of stochastic processes. Correlation and power spectrum of stationary processes. Lectures: 3 hours per week

Prerequisites: Engineering Mathematics N-331 & N-371

Engineering Mathematics N-491**Numerical Methods in Engineering Systems**

Methods of numerical solution of mathematical models in engineering. Interpolation. Quadratures for numerical differentiation and integration of tabulated functions. Zeros of polynomials. Systems of linear and non-linear algebraic equations. Numerical solutions of ordinary differential equations using single and multi-step methods. Analysis of round-off and discretization errors. Numerical techniques for the inversion of matrices, and for determining eigenvalues and eigenvectors of matrices, state vectors, transfer vectors and matrices. Lectures: 3 hours per week

Prerequisites: Engineering Mathematics N-311 & N-331

Engineering**Engineering N-211****Engineering Graphics**

Elements of orthogonal projection, principal and supplementary views, analysis of three - dimensional spatial relationships of points, lines, planes and solids. Introduction to sectioning conventions, industrial fasteners, and preparation of detail and assembly drawings. Lectures: 3 hours per week

Laboratory: 2 hours per week

Engineering N-212**Introduction to Engineering Design**

Introduction to engineering design procedures through the use of open-ended design projects. Lecture topics will include engineering design process, consideration of alternatives, specifications, selection of materials, fundamentals of manufacturing processes, dimensioning for manufacture and interchangeability, quality control, presentation of engineering data and calculations; application of computer graphics in design. Lectures: 2 hours per week

Laboratory: 2 hours per week

Prerequisites: Engineering N-211; Computer Science N-211 or equivalent

Engineering N-221**Materials Science**

A study of the relationships between properties and internal structure and of the mechanisms of structural change. Atomic bonding; molecular, crystalline and amorphous structures. Structural imperfections and atom movements.

Microstructure, plastic deformation and mechanical properties of ceramics. Structure and mechanical properties of polymers. Lectures: 3 hours per week

Tutorial: 1 hour per week

Engineering N-241**Applied Mechanics**

Resultants of force systems; equilibrium of particles and rigid bodies; distributed forces; statically determinate systems; friction; moments of inertia. Principles of particle kinematics and dynamics; rigid body motion; work and energy; impulse and momentum; dynamics of a system of particles and rigid bodies. Lectures: 4 hours per week

Tutorial: 1 hour per week

Prerequisite: Engineering Mathematics N-312 previously or concurrently

Engineering N-341 (343)**Mechanics of Materials I**

Stress, strain and elasticity; analysis and design of structural and machine elements subjected to axial, torsional, and bending loads; shear and bending moment diagrams; deflections; analysis of statically indeterminate systems; combined stresses; composite beams. Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Tutorial: 1 hour per week

Prerequisites: Engineering N-241, Engineering Mathematics N-312, Engineering Mathematics N-332 previously or concurrently

Engineering N-351 (350)**Thermodynamics I**

Basic principles of thermodynamics and their application to various systems composed of pure substances and their homogeneous non-reactive mixtures. Simple power production and utilization cycles. Lectures: 3 hours per week

Tutorial: 1 hour per week

Prerequisite: Mathematics 003, or equivalent

*Engineering N-361 (351)***Fluid Mechanics I**

Fluid properties and flow characteristics; fluid statics, basic laws for systems and control volumes, conservation of mass, linear-momentum equations, moment-of-momentum equations, first law of thermodynamics, Bernoulli equation, kinematics of flow, dynamics of flow, dimensional analysis and similitude, characteristics of real fluid flow, flow measurement.

Lectures: 3 hours per week

Tutorial: 1 hour per week

Prerequisites: Engineering Mathematics N-311 & N-331, Engineering N-351

*Engineering N-371***Physical Systems & Measurements I**

Definition of dynamical system; lumped system elements, mechanical, electrical, fluid, and thermal; generalized lumped elements; modelling of simple systems; solutions of the equations for first and second order systems; analog computation in the study of system dynamics.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Tutorial: 1 hour per week

Prerequisite: Engineering Mathematics N-312, previously or concurrently

*Engineering N-372***Physical Systems & Measurements II**

Network representation of systems; formulation of system equations; frequency response methods; generalized impedances; signal analysis, singularity functions, periodic functions.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Tutorial: 1 hour per week

Prerequisites: Engineering Mathematics N-312, previously or concurrently; Engineering N-371

*Engineering N-441 (441)***Mechanics of Materials II**

Dynamic loading, repeated loads, stress concentrations and fatigue, introduction to inelastic action, energy methods, theories of failure, shear centre, unsymmetrical bending, bending of curved bars, introduction to linearized mathematical theory of elasticity, introduction to elastic stability.

Lectures: 3 hours per week

Prerequisites: Engineering Mathematics N-331, Engineering N-341

*Engineering N-461 (451)***Fluid Mechanics II**

Navier-Stokes equations, incompressible viscous flow, boundary layer theory, one-dimensional compressible flow, isentropic flow, normal shock, operation of nozzles and diffusers, flow through constant area ducts with friction, differential equations for open channel flow, specific energy, gravity waves, hydraulic jump. Selected experiments in incompressible, compressible, subsonic and supersonic flow.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering Mathematics N-411, previously or concurrently; Engineering N-361

*Engineering N-471 (471)***Physical Systems & Measurements III**

An extension of Physical Systems and Measurements I & II presenting a unified treatment of the measurement of physical quantities; the modelling of transducers; the multi-port nature of measuring systems; system behaviour; the validation of experimental data. Laboratory work includes experiments on transducer behaviour and system suitability.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering Mathematics N-311 & N-331, Engineering N-372

*Engineering N-472 (472)***Fundamentals of Control Systems**

General feedback theory; time and frequency domain analysis of feedback control systems; stability criteria; root-locus methods; modelling of d.c. servo; design of simple feedback systems; introduction to state-space methods

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering Mathematics N-411 or N-412; Engineering N-372

*Engineering N-501***Engineering Economy & Practice**

Different branches of law. Engineering registration. Negligence. Law vs. Ethics. Contracts. Labour organizations and legislation and Workmen's Compensation Act. Organization and financing of business enterprise. Functions of management. CPM and PERT. Economy studies for decision making. Annual cost method. Present worth method. Rate of return method. Multiple alternatives. Depreciation. Income tax. Lectures: 3 hours per week

*Engineering N-510 (510)***Technical Report**

Each Engineering student must submit a technical report on entering his final year. This report should be from 2,000 to 5,000 words in length, on a topic drawn from the engineering experience of the student during his summer work. If a suitable topic based on personal experience is not available, the student may write on a topic connected with engineering, scientific or industrial work. Any student may consult the chairman of his department concerning the suitability of his proposed topic. If it is judged suitable, the letter of approval must accompany the report.

The report, including an abstract, must be suitably documented and illustrated, must be typewritten on one side only of 8½" x 11" white paper of good quality and must be suitably bound. Students are referred to Kate L. Turabian, *A Manual for Writers of Term Papers, Theses and Dissertations*, for matters of style and notation.

The report is to be submitted by the third Monday after Fall classes begin. With the exception of special circumstances approved by the Engineering Undergraduate Studies Committee in individual cases, any acceptable report submitted after this date will receive an S grade.

*Engineering N-511 (511)***Computer Organization & Software**

Logical basis of computer structure; machine organization and functional units; machine programming including subroutines, linkages, macros and assembly systems; compilers and operating systems.

Lectures: 3 hours per week

Laboratory: 1 ½ hours per week

Prerequisite: Computer Science N-211, or equivalent

*Engineering N-512 (512)***Operations Research**

An introduction to the application of mathematical models to various industrial problems; queuing theory, game theory, linear programming, inventory theory and Monte Carlo processes.

Lectures: 3 hours per week

Laboratory: 1 ½ hours per week

Prerequisite: Computer Science N-211, or equivalent

*Engineering N-541 (Civil Engineering 541)***Experimental Stress Analysis**

A study of modern experimental methods of determining stresses and strains; mechanical, electrical and optical strain gauges; photoelasticity; brittle coatings; model analysis.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisite: Engineering N-441

*Engineering N-571***Time Domain Analysis and Design**

State space analysis and design of continuous and discrete systems. Controllability and observability, modal control, pole placement techniques, Luenberger observers, Liapunov stability.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Engineering N-472

*Engineering N-572***Optimal Control**

Parameter optimization. Lagrange multipliers and the Kuhn-Tucker lemma, calculus of variations and the Euler-Lagrange equation. Pontryagin's maximum principle, time-optimal and fuel-optimal control, introduction to dynamic programming, linear programming, computational methods.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Engineering N-571

*Engineering N-573***Control System Design**

A course in industrial control design procedures by case study, including practical sensing, control, and actuating elements; optimization of system performance by choice of components and compensation; nonlinearities, introduction to multi-loop systems.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering N-471, previously or concurrently; Engineering N-472

*Engineering N-574 (575)***Digital Computers in Systems**

A study of the application of digital computers to control systems. Topics to be studied include sampled data systems; coding and data transmission; interfaces and analog-digital conversion techniques; simulation of discrete systems.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering N-511 & N-571

Social Aspects of Engineering*Engineering N-581***Engineers and Society I**

Engineering undertakings have many indirect economic and environmental effects on society. This course traces the parallel developments in ideas and attitudes towards engineering and society.

Lectures: 3 hours per week

Prerequisite: Completion of 20 courses

*Engineering N-582***Engineers and Society II**

A continuation of Engineering N-581, discussing methods of forecasting technological change and assessing its impact on society.

Lectures: 3 hours per week

Prerequisite: Engineering N-581

*Engineering N-583***The Impact of Science and Technology in Society I**

Exposition of the profound influences that (1) science has had on the intellectual life of mankind and (2) technological innovations have had on the organization of society. Part I considers the historical aspects, including the industrial revolution, by thoroughly examining certain highlights. Galileo, Descartes and Newton and the subsequent steady advance in technology. Darwin, evolution and evolutionism. Advances in electricity and magnetism and industrial electrification.

Seminars: 3 hours per week

Prerequisite: Completion of 20 courses

*Engineering N-584***The Impact of Science and Technology in Society II**

This course considers the scientific and technological advances of the 20th century, examines the influences and problems of the present and proceeds to formulate criteria for directing technological innovation. Remote

sensing, feedback control and automation. Mass production and quality control. Power and natural resources. Pollution, ecology and population density. Communications technology and the understanding of media. The two cultures and the new Luddites. Utopias.

Seminars: 3 hours per week

Prerequisite: Engineering N-583

Civil Engineering*Civil Engineering N-421***Engineering Materials**

Engineering properties of steel and other selected structural metals; heat treatment of steel and aluminium alloys. Properties of woods. Engineering properties and design of concrete. Bituminous materials. Ceramics. Design characteristics and significance of test results of materials used in engineering construction. Introduction to composite materials.

Lectures: 3 hours per week

Laboratory: 3 hours per week

Prerequisite: Engineering N-221

*Civil Engineering N-431 (431)***Geology**

Basic principles of physical and structural geology, with emphasis on topics related to Civil Engineering; study of minerals, rocks and soil types, load formation, techniques of air photo interpretations and geological maps.

Lectures: 2 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Engineering N-221

*Civil Engineering N-451***Structural Engineering I**

Principles of structural engineering. Analysis of statically determinate structures. Behaviour and design of steel members: beams, columns, and beam-columns. Riveted, bolted, and welded connections.

Lectures: 3 hours per week

Laboratory: 2 hours per week

Prerequisite: Engineering N-441, previously or concurrently

*Civil Engineering N-452***Structural Engineering II**

Approximate methods of building frame analysis. Properties, behaviour, and design of reinforced concrete members. Design of timber members.

Lectures: 3 hours per week

Laboratory: 2 hours per week

Prerequisites: Engineering N-441, Civil Engineering N-451

*Civil Engineering N-461 (461)***Hydrology**

Principles of hydrology and methods of analysis for engineering design. Hydrologic cycles, data collection and interpretation. Precipitation, evaporation, stream flow, floods, groundwater. Practical design examples.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisites: Engineering Mathematics N-371, Engineering N-461; Civil Engineering N-431 previously or concurrently

*Civil Engineering N-471 (471)***Surveying**

Elementary operations employed in engineering surveying; use, care and adjustment of instruments; linear and angular measurements; traversing; earthwork calculations; theory of errors; horizontal and vertical curves and curve layout; slope stakes and grades, application of surveying methods to city, land and topographic surveying and introduction to advanced surveying techniques; use of digital computers in survey calculations.

Summer school taken before entering second year of study in the B. Eng. programme.

Lectures and Field Work: 8 hours per day;
6 days per week for 3 weeks

*Civil Engineering N-472 (472)***Transportation Engineering**

A survey of all transportation modes and introduction to some recent concepts of transportation system planning. Social and economic importance of transportation; development and history of transportation; essential elements of a transportation system, characteristics of rail, road, air, water pipeline and other transportation modes. Transportation planning, land use and traffic, multiple use of right-of-way; team approach; route and terminal location.

Lectures: 3 hours per week

Prerequisite: Civil Engineering N-471

*Civil Engineering N-531 (531)***Soil Mechanics I**

Index properties and classification of soils. Weight-volume relationships. Soil structure. Clay mineralogy. Moisture-density relationships. Capillarity. Permeability. Flow nets and seepage. Neutral and effective stresses. Consolidation theory. Shear strength. Frost action. Stresses in soil due to external loads. Laboratory tests to illustrate lecture topics.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisites: Civil Engineering N-421 & N-431

*Civil Engineering N-532 (532)***Foundations**

Soils, rocks and soil moisture. Soil exploration. Loads, bearing capacity and settlement. Lateral pressures. Foundation drainage and waterproofing. Spread footings. Strip footings. Combined footings. Pile foundations. Caissons. Retaining walls. Sheet piling walls. Braced cofferdams. Cellular cofferdams. Anchors.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Civil Engineering N-452 & N-531

*Civil Engineering N-533 (533)***Soil Mechanics II**

Selected topics in mechanics of soil media including water flow, rheological behaviour, failure theories, and ideal materials.

Lectures: 3 hours per week

Prerequisite: Civil Engineering N-531

*Civil Engineering N-551***Structural Engineering III**

Elastic deformations of structures; elastic and plastic methods of analysis of statically indeterminate structures. Computer applications.

Lectures: 3 hours per week

Laboratory: 2 hours per week

Prerequisite: Civil Engineering N-452

*Civil Engineering N-552 (553)***Matrix Analysis of Structures**

Classical and matrix methods of structural analysis; influence coefficients, transformation matrices. Matrix formulation of the force and of the displacement methods of analysis. Computer applications.

Lectures: 3 hours per week

Prerequisites: Engineering Mathematics N-411, Civil Engineering N-551

*Civil Engineering N-553***Advanced Reinforced Concrete Design**

Design of reinforced concrete slabs, frames, prefabricated structures, girders, and shells; pre-stressed concrete structures.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisite: Civil Engineering N-551

*Civil Engineering N-554***Advanced Steel Structures**

Contemporary methods for analyzing and designing steel structures. Codes. Comprehensive design problems from the fields of steel buildings, bridges of various types, and cable structures.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisite: Civil Engineering N-553 previously or concurrently

*Civil Engineering N-561***Hydraulic Structures**

Project planning. Selection of type of dam. Foundations and construction materials. Earthfill, rockfill and concrete dams. Spillways and outlet works. Diversion during construction. Maintenance and operation. Sample specifications.

Lectures: 3 hours per week

Prerequisites: Civil Engineering N-531; Civil Engineering N-461 previously or concurrently

*Civil Engineering N-562***Water Resources Engineering I**

Open-channel flow and its classifications. Open channels and their properties. Energy and momentum principles. Critical flow: computation and applications. Development of uniform flow and its formulas. Computation of uniform flow. Design of channels for uniform flow. Gradually varied flow: theory and analysis, methods of computation and practical problems.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisite: Engineering N-461 previously or concurrently

*Civil Engineering N-563***Water Resources Engineering II**

Planning, development, and design of water resources systems. Socio-economic aspects of water resources projects. Engineering economy in water resources development. Reservoir design and operating rules; flood control. Design of hydraulic control structures including flow measurements. Hydraulic machinery. Introduction to hydro-electric developments. Land and urban drainage. Hydraulic aspects of irrigation. Elements of river engineering. Topics in water quality management.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisites: Civil Engineering N-461 & N-562

*Civil Engineering N-571***Highway Design**

Design controls and criteria including traffic and highway characteristics and capacity. Location and right-of-way. Earthworks. Geometric design of highways and terminals. Pavement design. Highway design project.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisite: Civil Engineering N-472

*Civil Engineering N-572***Traffic Engineering**

Techniques used in transportation planning: economic base, demographic, land use, and traffic studies, origin - destination surveys. Use of mathematical models. Trip generation and distribution, modal split, traffic assignment. Emphasis on use of these techniques for problem solving and interaction with other disciplines: planning, economics, technology.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisite: Civil Engineering N-472

*Civil Engineering N-573***Urban Planning**

The general planning process. Basic studies: population, economics and land use. Land use planning. Capital improvement programmes and financing. Plan implementation.

Lectures: 3 hours per week

Prerequisite: Civil Engineering N-472

*Civil Engineering N-581 (582)***Water Supply Systems**

Basic engineering, biological, chemical, and economic principles of domestic and industrial water supply systems. Development of water sources; water requirements; water quality and public health aspects of water supply; water conveyance; analysis and design of distribution systems; principles of physical and chemical treatment of raw water; pumps and pumping stations; economics of water supply systems.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering Mathematics N-371; Engineering N-461 previously or concurrently

*Civil Engineering N-582 (583)***Urban Sanitation**

Sources, characteristics, and quantities of wastewaters; types of pollution; public health aspects of urban sanitation. Urban hydrology and drainage; design of wastewater collection systems; pumps and wastewater pumping stations

Application of engineering, physico-chemical, and bacteriological principles to the design of wastewater treatment and disposal plants; solid wastes disposal; stream pollution and control; economics of pollution control.

Lectures: 3 hours per week

Prerequisite: Engineering N-461

Electrical Engineering

Electrical Engineering N-351

Fundamentals of Electrical Engineering

Electric charge, Coulomb's law, electrostatic forces, electric field, Gauss' law, electric potential, stored energy, potential energy. Capacitance, dielectrics, properties of materials in electric fields, magnetic induction, energy stored in magnetic fields. Ohm's law, electrical conduction, electromotive force, inductance, magnetism in matter, time varying fields. Simple electric and magnetic circuits.

Lectures: 3 hours per week.

Tutorial: 1 hour per week.

Prerequisites: Mathematics 005, Physics 002, or equivalents

Electrical Engineering N-411 (421)

Electronics I

Diodes, rectifiers, smoothing circuits, waveform-shaping circuits. Zener, varactor, and tunnel diodes. Characteristics and operation of field-effect transistors, vacuum tubes, and bipolar transistors. Biasing techniques and small-signal analysis for field-effect transistors. Voltage and current amplifiers and their applications.

Lectures: 3 hours per week

Laboratory: 3 hours per week

Prerequisite: Engineering N-372

Electrical Engineering N-412 (422)

Electronics II

Biasing techniques and small-signal analysis for bi-polar transistors. Multistage amplifiers. Operational amplifiers. High frequency analysis. Frequency response of amplifiers. Feedback theory. Oscillator circuits.

Lectures: 3 hours per week

Laboratory: 3 hours per week

Prerequisite: Electrical Engineering N-411

Electrical Engineering N-421

Electrical Properties of Solids

Crystal structure, reciprocal lattice, dynamics of crystal lattices, outline of quantum and statistical mechanics, electronic conduction, semi-conductors, superconductivity, dielectrics, magnetism.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Engineering N-221

Electrical Engineering N-431 (431)

Electromechanics I

Energy in singly and doubly excited systems; electro-mechanical energy conversion principles; basic features of rotating machines; ideal d.c., polyphase induction, and synchronous machines.

Lectures: 3 hours per week

Laboratory: 3 hours per week

Prerequisite: Engineering N-372

Electrical Engineering N-432 (432)

Electromechanics II

More detailed study of d.c., polyphase induction and synchronous machines, including the effects of magnetic saturation; single-phase fractional-horsepower motors; transformers in 3-phase circuits; static rectifiers and inverters; application of thermal networks to the rating of machines.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering Mathematics N-411 or N-412; Electrical Engineering N-431

Electrical Engineering N-441

Linear Network Analysis

Preliminary considerations. The s-plane and system functions. Network topology and equilibrium equations. One and two port networks. The indefinite admittance matrix and its applications. Response to singularity functions. Transient response of networks.

Lectures: 3 hours per week

Prerequisites: Engineering Mathematics N-412; Engineering N-372

Electrical Engineering N-442

Distributed Parameter Systems

Transmission line theory. Lossless and distortionless lines. The transmission line on a two port device. Scattering parameters. Impedance transfer, Smith chart, stub matching, standing waves. Derivation of partial differential equations for various physical systems. Methods of solution for elliptic, parabolic and hyperbolic equations. Applications, including rectangular wave guides.

Lectures: 3 hours per week

Prerequisites: Electrical Engineering N-441 & N-451

Electrical Engineering N-451**Electromagnetic Field Theory**

The field concept. Maxwell's equation. Boundary conditions. Power and energy. The electrostatic field. Electrostatic potential. The concept of capacitance. Conformal mapping in electrostatics. Polarization. The concept of local field in matter. The magnetostatic field. The Biot-Savart law. The scalar magnetic potential. Plane waves. Total internal reflection. The Brewster angle.

Lectures: 3 hours per week

Tutorial: 3 hours per week, alternate weeks

Prerequisites: Engineering Mathematics N-331 & N-351

NOTE: After 1974-75, Electrical Engineering N-351 will also be a prerequisite for Electrical Engineering N-451.

Electrical Engineering N-501 (501)**Electrical Engineering Seminar**

In the second term of the final year, students in Electrical Engineering hold meetings with faculty members. These meetings are organized to provide the student with an opportunity to exercise his ability to present and to defend his thoughts on topics of his own choice. Students will be encouraged to devote some of their discussions to such topics as continuing professional education, professional societies, organization of engineering employment, and professional ethics.

Seminars: 2 hours per week

Prerequisite: Completion of 17 courses

Electrical Engineering N-511 (521)**Electronics III**

A continuation of the material of Electrical Engineering N-412; wave-shaping circuits and digital logic circuits.

Lectures: 3 hours per week

Laboratory: 3 hours per week

Prerequisites: Engineering Mathematics N-412; Electrical Engineering N-412

Electrical Engineering N-512**Design of Logic and Switching Circuits**

Combinational logic and Boolean algebra for the description and analysis of electrical switching circuits. Transistor logic elements and their practical limitations. Analysis, synthesis and minimization of combinational and sequential circuits.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Electrical Engineering N-411

Electrical Engineering N-521**Semiconductor Physics**

Electrons in periodic lattices, intrinsic and extrinsic semiconductors; p-n junctions, rectifiers and transistors; material and devices technology.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Electrical Engineering N-421

Electrical Engineering N-522**Semiconductor Devices Design**

Junction and field-effect transistors; surface effects and surface-controlled devices; other semiconductor devices; device technology.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Electrical Engineering N-521

Electrical Engineering N-531 (571)**Electrical Power Engineering**

Inductance, capacitance, resistance of polyphase transmission lines; current and voltage relations of transmission lines; load flow studies; symmetrical and unsymmetrical faults; power system stability.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Electrical Engineering N-431

Electrical Engineering N-532 (532)**Generalized Machine Theory**

Linear transformation to electric circuits analysis; power invariant transformations; primitive machines; dynamic and steady-state response of machines.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Electrical Engineering N-431

Electrical Engineering N-541**Modern Filter Design**

Image parameters, constant-k and m-derived filters. The approximation problem. Design of Butterworth, Tchebyscheff, and Bessel filters as terminated lossless networks. Design of constant-resistance all-pass networks. Design of active-RC filters using operational amplifiers.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Electrical Engineering N-441

Electrical Engineering N-542**Digital Filters**

Introduction to recursive and non-recursive digital filters; realization methods using the z-transform calculus; amplitude and phase

characteristics and relevant approximations and transformations; comparison of digital with conventional filters; application of digital filters.

Lectures: 3 hours per week

Prerequisite: Electrical Engineering N-441

Electrical Engineering N-543

Topics in Network Theory

The course content may vary from year to year and will be chosen from such current areas as computer aided design, inductorless filter design, etc.

Lectures: 3 hours per week

Prerequisite: Electrical Engineering N-541

Electrical Engineering N-551

Lasers and Masers

Electric dipole transitions. Lifetime and collision broadening. Magnetic dipole transitions. Fundamentals of maser amplification. Rate equations. Microwave solid state masers. Optical resonators and lens waveguides. Doppler broadening. Optical masers (lasers).

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Electrical Engineering N-451

Electrical Engineering N-552 (552)

Microwave Engineering

The dipole antenna. Wave propagation in guides. Impedance transformation and matching. Waveguide couplers. Cavity resonators. Microwave filter design. Ferrite devices. The reflex klystron. The magnetron. The travelling wave tube.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Electrical Engineering N-442 & N-451

Electrical Engineering N-561 (561)

Communication Theory

Principles of amplitude, angle of pulse modulation. Components including modulators, mixers, limiters and demodulators. Representative examples of complete transmission systems. Qualitative treatment of modulation systems in the presence of noise.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Engineering Mathematics N-412

Electrical Engineering N-562 (562)

Statistical Communication Theory

Transmission and filtering of random signals. Linear mean square optimum filters. Analysis of modulation systems in the presence of noise. Introduction to information theory.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering Mathematics N-371, Electrical Engineering N-561

Electrical Engineering N-581

Electrical Engineering Project

The Electrical Engineering project provides an opportunity for each student to carry out a small design project associated with one or more of the specialist elective courses, under the supervision of a faculty member. The nature of the project selected should be such as to require independent study of current technical literature. When feasible the designs will be assessed in the laboratory. Each student is to present a complete report at the end of the project.

Equivalent laboratory time: 6 hours per week

Prerequisite: Registration in final year

Mechanical Engineering

Mechanical Engineering N-401

Seminar

Meetings involving students and faculty members to provide the students with an opportunity to develop their communication skill by presenting and defending their thoughts on a wide range of topics.

Seminar: 1 hour per week for 2 terms

Prerequisite: Registration in the Mechanical Engineering programme

Mechanical Engineering N-421

Heat Treatment of Metals

Science and technology of heat treating of metals; the effect of micro-structural changes on the properties of alloys. Solid solution alloys, diffusion. Equilibrium phase diagrams. Kinetics of phase transformations. Thermomechanical treatment of steels. Precipitation hardening. Solidification.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Engineering N-221

Mechanical Engineering N-422

Mechanical Properties of Metals

The mechanisms of deformation and softening and the effects of processing variables on the mechanical properties of metals: cold working, annealing, and hot working of metals. The service capabilities of alloys and their relationship to thermomechanical processing: creep, fracture, fatigue and corrosion of metals and materials. Composite materials.

Lectures: 3 hours per week

Tutorial: 3 hours per week, alternate weeks

Prerequisite: Engineering N-221

Mechanical Engineering N-441 (443)**Kinematics of Mechanisms**

Geometry of motion and mobility criteria; kinematic analysis and synthesis of linkages; theory of spur gear; helical, worm and bevel gearing; gear trains and differentials; cam kinematics; introduction to analog computing mechanisms.

Lectures: 2 hours per week

Laboratory: 2 hours per week

Prerequisites: Engineering Mathematics N-331, Engineering N-241

Mechanical Engineering N-442 (444)**Dynamics of Machines**

Kinematic analysis of space mechanisms; static and dynamic analysis of planar mechanisms and gear trains; Euler's equations of motion; gyroscopic forces; dynamic analysis of space mechanisms; balancing of rotating and reciprocating machinery; introduction to mechanical vibrations.

Lectures: 3 hours per week

Laboratory: 3 hours per week

Prerequisites: Engineering Mathematics N-351, Mechanical Engineering N-441

Mechanical Engineering N-451 (454)**Thermodynamics II**

Thermodynamic functions and equations, relationships between properties; behaviour of gases and their nonreactive mixtures; combustion. Applications of thermodynamics to power production and utilization systems.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Engineering N-351

Mechanical Engineering N-452 (455)**Heat Transfer I**

Steady state and transient heat conduction, numerical methods for two-dimensional steady state heat conduction. Radiation heat exchange between black bodies, between grey bodies and from gases, vapours and flames.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Engineering Mathematics N-411

Mechanical Engineering N-501**Mechanical Engineering Seminar**

Meetings similar to those in Mechanical Engineering N-401; students will be encouraged to devote some of their discussions to such topics as continuing professional education, professional societies, organization of

engineering employment, and professional ethics.

Seminar: 1 hour per week for 2 terms

Prerequisite: Registration in final year

Mechanical Engineering N-521 (521)**Manufacturing Processes**

The various processes for shaping materials are studied from both theoretical and practical aspects. The limitations imposed by the properties of the raw materials and the effect of processing on the final properties of the products. Casting. Welding. Non-destructive testing. Powder technology. Mechanical forming: shear line theory, extruding, forging, rolling, drawing, bending. Metal cutting, machinability, non-traditional techniques, metrology. Finishing processes. Plastics processing: extrusion, molding, vacuum forming, lamination. Industrial practice is observed through field trips.

Lectures: 3 hours per week

Tutorial: 3 hours per week, alternate weeks

Prerequisites: Mechanical Engineering N-421 & N-422 previously or concurrently

Mechanical Engineering N-541 (541)**Machine Design I**

Failure of mechanical elements under dynamic loading; principles of design synthesis; shafting; bolted and welded joints; mechanical springs; clutches; brakes and couplings; anti-friction bearings; theory of lubrication and journal bearings; flexible mechanical elements.

Lectures: 3 hours per week

Laboratory: 3 hours per week

Prerequisites: Engineering N-441, Mechanical Engineering N-442

Mechanical Engineering N-542 (542)**Machine Design II**

Design of gears; design of gear drives; introduction to design of machine tools; introduction to optimum design of mechanical systems; technical talks on selected topics in mechanical design; machine design project.

Lectures: 1½ hours per week

Project: 6 hours per week equivalent laboratory time

Prerequisite: Mechanical Engineering N-541

NOTE: Credit will only be given for one of Mechanical Engineering N-542 and N-581.

Mechanical Engineering N-543 (543)**Mechanical Vibrations**

Transient vibrations under impulsive shock, and arbitrary excitation; normal modes, free and forced vibrations. Multi-degree of freedom systems, influence coefficients, orthogonality

principle, numerical methods. Continuous systems; longitudinal torsional and flexural free and forced vibrations of prismatic bars.

Lagrange's equations. Non-linear vibrations.

Vibration measurements.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering Mathematics N-411, Engineering N-372, Mechanical Engineering N-442

Mechanical Engineering N-551 (557)

Thermodynamics III

A continuation of Thermodynamics II including applications to more complex power production and utilization systems, gas vapour mixtures and development of property data.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Mechanical Engineering N-451

Mechanical Engineering N-552 (558)

Heat Transfer II

Review of momentum transfer, free and forced convection heat transfer, dimensional analysis as applied to convection heat transfer configurations, heat exchangers, introduction to mass transfer.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering N-461, Mechanical Engineering N-452

Mechanical Engineering N-553 (554)

Environmental Control

The effect of air temperature and humidity on physiological comfort, overall heat-transmission coefficients across building sections, heating load calculations, the effect of solar radiation on air-conditioning load, cooling load calculations, heating, air-conditioning and ventilating systems, design of piping and duct arrangement.

Lectures: 3 hours per week

Prerequisites: Mechanical Engineering N-452 & N-551

Mechanical Engineering N-554

Thermodynamics IV

Thermodynamics of reactive systems; systems involving external forces; direct energy conversion. Thermodynamic probability, distribution laws and applications of quantum-statistical mechanics.

Lectures: 3 hours per week

Prerequisites: Engineering Mathematics
Mechanical Engineering N-551

Mechanical Engineering N-561 (551)

Gas Dynamics

Review of one-dimensional, compressible flow.

Normal and oblique shock waves; Prandtl-Meyer flow; combined effects in one-dimensional flow; non-ideal gas effects; multi-dimensional flow; linearized flows; method of characteristics.

Selected experiments in supersonic flow, convergent-divergent nozzles, hydraulic analogue and Fanno tube.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering N-461, Mechanical Engineering N-451

Mechanical Engineering N-562 (553)

Fluid Machinery

Momentum analysis for fluid propulsion, moment-of-momentum and Euler turbine equations, thermodynamics of gas flow, analysis of blades and impellers, performance of incompressible and compressible turbo-machinery.

Lectures: 3 hours per week

Prerequisites: Engineering N-461, Mechanical Engineering N-451

Mechanical Engineering N-581 (581)

Design or Experimental Project

A mechanical engineering design, simulation or experimental project appropriate to the senior level carried out under the supervision of a faculty member. A complete report is required at the end of the project.

Equivalent Laboratory time: 6 hours per week

Prerequisite: Registration in final year

NOTE: Credit will only be given for one of Mechanical Engineering N-542 and N-581

Computer Science

Computer Science N-211 (211)

Introduction to Computers and Computing

An introduction to the essential features of computers and computing systems. Problem solving, algorithms, and flowcharts. Detailed specifications of Fortran with numerical and non-numerical applications.

Lectures: 3 hours per week, 1 term

Laboratory: 1½ hours per week, 1 term

NOTE: Students who have credit for Computer Science 011 or equivalent may not take this course for credit.

Computer Science N-220

Introduction to Discrete Structures

Introduction to some fundamental algebraic, logical and combinatoric concepts such as: Set algebra; mappings and relations. Algebraic

structures; semi-groups and groups. Elements of the theory of directed and undirected graphs. Boolean algebra and propositional logic. Applications of these structures to various areas of computer science.

Lectures: 3 hours per week, 1 term

Prerequisites: Computer Science 011, or equivalent, previously or concurrently;

Mathematics 002, or equivalent

Computer Science N-221

Introduction to Assembly Language Programming

Computer structure, machine language, instruction execution, addressing techniques and digital representation of data. Symbolic coding and assembly systems; macro definition and generation. Programme segmentation and linkage; loading. Systems and utility programmes; programming techniques. Introduction to the facilities provided by operating systems. Lectures: 3 hours per week, 1 term
Laboratory: 1½ hours per week, 1 term
Prerequisite: Computer Science 011, or equivalent

Computer Science N-222

Introduction to Business Programming

Introduction to the data processing field and use of a business oriented language (e.g. COBOL). Concepts of mass storage characteristics. File organization and handling; sorting. Basic business applications.

Lectures: 3 hours per week, 1 term

Laboratory: 1½ hours per week, 1 term

Prerequisite: Computer Science 011, or equivalent

NOTE: Students who have credit for Computer Science N-212 or Quantitative Methods N-423 may not take this course for credit.

Computer Science N-223

Computer Languages

Achievement of proficiency in programming techniques using high-level languages. Definition of various programming languages including procedure-oriented, list processing, and simulation languages. Specification of syntax and semantics. Basic properties of programming languages. The goal of precision programming and its attainment through structured programming techniques.

Lectures: 3 hours per week, 1 term

Laboratory: 1½ hours per week, 1 term

Prerequisites: Computer Science 011, Mathematics 005, or equivalents; Computer Science N-220

Computer Science N-301

Computer Organization

Organization, logic design and components of a digital computer. Basic digital circuits. Data representation and transfer. Digital arithmetic. Digital storage and accessing. Control functions. Input-output devices and channels. System organization. Reliability. Description and simulation techniques.

Lectures: 3 hours per week, 1 term

Prerequisites: Computer Science N-221;

Computer Science N-223 or N-310

NOTE: Students who have credit for Computer Science N-401 (401) may not take this course for credit.

Computer Science N-302

Computer Operating Systems

Software organization. Batch processing systems; translation, loading and execution. Communication between programme units. Parallel input-output processing, buffers, overlapped channels, interrupt facilities and memory protection. Spooling. Multiprogramming and multiprocessing systems. Time-sharing and real-time applications. Addressing techniques, paging, core management; file system design and accounting procedures.

Lectures: 3 hours per week, 1 term

Prerequisite: Computer Science N-301, or equivalent. After 1974-75, Computer Science N-223 will also be a prerequisite

NOTE: Students who have credit for Computer Science N-402 (402) may not take this course for credit.

Computer Science N-303

Programming Languages and Compiler Theory

Review of assemblers and macro instructions. Symbol tables and storage allocation. Problem-oriented languages. List processing and string manipulation languages. Structure of algorithmic languages. Compiler organization; statement identification and decomposition, syntax analysis code generation, run-time routines, error diagnostics, code optimization. Compiler writing languages.

Lectures: 3 hours per week, 1 term

Prerequisites: Computer Science N-301;

Computer Science N-312 previously or concurrently. After 1974-75 the prerequisites will be Computer Science N-221 & N-223.

NOTE: Students who have credit for Computer Science N-403 (403) may not take this course for credit.

*Computer Science N-310***Intermediate Scientific Programming**

Achievement of proficiency in programming techniques using Fortran. Arrays, iteration, subroutines and procedures, numerical and non-numerical data types, storage allocation, character manipulation. Debugging techniques. Use of library programmes. Basic applications in science, e.g. mathematics, statistics.

Lectures: 3 hours per week, 1 term

Laboratory: 1 ½ hours per week, 1 term

Prerequisites: Computer Science 011, Mathematics 005, or equivalents

*Computer Science N-311***Principles of Data Processing**

Study of techniques to handle large scale data processing applications. Design of business systems. Preparation and handling of data. Interpretation and validity of results. Information retrieval. Introduction to systems analysis.

Lectures: 3 hours per week, 1 term

Prerequisite: Computer Science N-222

NOTE: Students who have credit for Computer Science N-411 (411) may not take this course for credit.

*Computer Science N-312***Data and File Structures I**

A model of Data Processing System. Basic concepts of data. Trees and linear lists. Hierarchic and associative structures. Storage structures and storage management.

Lectures: 3 hours per week, 1 term

Prerequisites: Computer Science N-221, N-222 & N-310, or permission of the Department. After 1974-75, Computer Science N-223 will replace Computer Science N-310 as a prerequisite.

NOTE: Students who have credit for Computer Science N-412 (412) may not take this course for credit.

*Computer Science N-320***Numerical Methods**

Introduction to numerical algorithms fundamental to scientific computer applications. Errors; interpolation; quadrature; linear systems of equations; roots of polynomials and non-linear equations; numerical solution of ordinary differential equations. Emphasis on the algorithmic approach; efficiency.

Lectures: 3 hours per week, 1 term

Laboratory: 1 ½ hours per week, 1 term

Prerequisites: Mathematics 006 or N-281 or Engineering Mathematics N-331, or equivalent; Computer Science N-223 or N-310

NOTE: Students who have credit for Engineering Mathematics N-491 may not take this course for credit.

*Computer Science N-340***Special Purpose Computer Systems**

Structure and system organization of special purpose computers. Symbolic coding and assembly language, instruction repertoire, addressing modes, programming techniques, systems and utility programming, peripheral devices and interfacing. A small computer system will be used for demonstration and laboratory purposes.

Lectures: 3 hours per week, 1 term

Laboratory: 1 ½ hours per week, 1 term

Prerequisite: Computer Science N-301, or permission of the Department

*Computer Science N-404***Formal Languages and Syntactic Analysis**

Definition of formal grammars: arithmetic expressions and precedence grammars; context-free and finite-state grammars. Algorithms for syntactic analysis; recognizers, backtracking and operator precedence techniques. Semantics of grammatical constructs. Simple syntactical compilation. Relationship between formal languages and automata.

Lectures: 3 hours per week, 1 term

Prerequisites: Computer Science N-303 & N-312

*Computer Science N-405***Computer Graphics**

Display memory: generation of points, vectors, etc. Interactive versus passive graphics; CRT devices and plotters. Analog storage of images. Digitizing and digital storage. Pattern recognition. Data structures and graphics software. The mathematics of 3 dimensional transformations; projections. Applications in computer-aided design and instruction.

Lectures: 3 hours per week, 1 term

Laboratory: 1 ½ hours per week, 1 term

Prerequisites: Computer Science N-302 & N-312

*Computer Science N-413 (413)***Data and File Structures II**

Multilinked structures, techniques of file structuring. File size and access time estimating. Data and file management systems. Searching.

Lectures: 3 hours per week, 1 term
Prerequisite: Computer Science N-312 or permission of the Department

Computer Science N-414

Information Retrieval

The basic problems of information retrieval. Document and library data bases. Question logic and processing considerations. Structure of search programmes for batched questions with sequential and inverted files. Practical considerations in system design. Measures of retrieval effectiveness.

Lectures: 3 hours per week, 1 term
Prerequisite: Computer Science N-312 or equivalent

Computer Science N-421 (421)

Introduction to the Theory of Automata

Finite state machines, state transition diagrams and tables. Neutral networks. Regular expressions, Kleenes theorem. Computability. Turings theorem. Turing machines. Universal machines relationships to the theory of recursive functions.

Lectures: 3 hours per week, 1 term
Prerequisite: Computer Science N-301 or N-430 or Electrical Engineering N-512

Computer Science N-430 (430)

Logical Design and Switching Theory

Binary codes and their arithmetic algorithms. Review of Boolean algebra and its application in the design of logic circuits. Asynchronous and synchronous sequential circuit design and analysis. Microprogramming and its application to system design.

Lectures: 3 hours per week, 1 term
Laboratory: 1 ½ hours per week, 1 term
Prerequisites: Computer Science N-211 & N-220, or permission of the Department

Computer Science N-440 (440)

Heuristic Programming

The definition of heuristic vs. algorithmic methods; rational heuristic approach; non-numeric symbolic programming; self-organizing systems; heuristic pro-techniques including a list of the uses of list processing languages; survey of examples from representative application areas including artificial intelligence, and other advanced computer application areas.

Lectures: 3 hours per week, 1 term
Prerequisite: Computer Science N-303

Computer Science N-450 (450)

Discrete System Simulation

A comparison of simulation techniques: discrete, continuous and hybrid. Queueing models, analysis of data. Model building. Review of simulation languages. Application to business problems and operations research.

Lectures: 3 hours per week, 1 term
Prerequisites: Mathematics N-351, Computer Science N-303

Computer Science N-491

Computer Science Project

A series of seminars presented by students and faculty members, concerning their particular interest. Students will work on a project in conjunction with a faculty member.

Seminar: 1 hour per week, 2 terms
Project: 2 hours per week, 2 terms
Prerequisite: Registration in final year

NOTE: Students who have credit for Computer Science N-490 may not take this course for credit.

Mature Student Qualifying Programme

Mature Student Qualifying Programme Aims

In keeping with the traditional open policy of Sir George Williams towards older students, the Mature Student Qualifying Programme is designed to enable students who are twenty-one years of age or older to prepare themselves for entry to the new post-CEGEP undergraduate programme. The university assumes that the age of the students will have allowed them to acquire informally some of the general education given to younger students in CEGEP, and as a result the Mature Student Qualifying Programme concentrates on the knowledge and skills which will be needed to tackle a given undergraduate programme.

Once admitted to an undergraduate programme, the mature student is considered in every way a regularly admitted student.

Successful completion of the appropriate qualifying courses (36 credits) will make the student admissible to the corresponding undergraduate programme. The Mature Student Qualifying Programme is offered in the Evening Division. Under special arrangements a mature student may take the qualifying courses as a full-time student.

Admission Requirements Minimum Age Requirement

Candidates must be at least twenty-one years of age within the calendar year in which they enter the programme. A birth certificate or other acceptable proof of age must be submitted in support of the application for admission.

Language Proficiency

Non-English students who are entering a programme calling for a required English course must take the University language diagnostic test prior to registration (or if this is not possible, during the registration period) in order to determine the English course best suited to their needs.

Non-English students entering a programme which does not have a required English course are not obliged to take the language diagnostic test. However, they are encouraged to do so as they may wish to enroll in an English course that would be helpful to them.

Non-English students may repeat English 100 or English 101 once only. If unsuccessful on repetition of the course, they will substitute a course in another discipline. No further English courses will be required of them.

Admission with Advanced Placement

Applicants who have attended a Senior Matriculation programme, college, university and/or other equivalent institutions of higher learning are required to have their records of study submitted to the Office of Admissions even though no credits may have been earned at an institution. Two copies of each transcript are required. Former CEGEP, university, and other such transcripts are not to be submitted by the student but must be sent directly to this office from the Registrar of the previous institution. Although an applicant's records from several institutions may be summarized on one transcript, an applicant will not be considered until two official transcripts from each institution attended have been received. Readable photocopies of Senior Matriculation Certificate results are acceptable.

Each request for transfer credits will be considered on its own merits. It should be noted that certain conditions are attached to the granting of credits for courses completed elsewhere.

Criteria for Admission

Applicants to the Mature Student Qualifying Programme are not required to write entrance tests, unless requested.

Application for Admission

It is recommended that application for admission be made as early as possible on forms provided by the Office of Admissions. Academic certificates and other supporting documents not available at the time of application must be submitted as soon as they become available.

Dates of Entry for New Mature Student Qualifying Programme Students

Students are admitted as Evening students to the Summer Session (June to August) and to the Winter Session (September to April) in June and September respectively.

Dates for Receipt of Applications

Applications for admission to the Mature Student Qualifying Programme must be received by the Office of Admissions according to the following dates:

Summer Session (June to August): April 15
Winter Session (September to April): August 15

Additional Information

1. Students registered in the 36 credit qualifying programme (Mature Student Qualifying

Programme) will have the option, on reaching their 25th birthday, of profiting from the provisions of the Mature Entry Plan (25 and over).

2. Courses completed as part of the qualifying programme (Mature Student Qualifying Programme) will not be transferred to the undergraduate programme.

3. Those admitted to the Undergraduate programme under the Mature Entry Plan will not be permitted to apply for any pro tanto credits in the undergraduate programme on the basis of any former records of study which would normally be used as a basis for admission.

Administrative Structure

There is no separate administrative structure for the Mature Student Qualifying Programme. Each faculty is responsible for its own programme and each academic department for the courses which it offers.

Application to Undergraduate Studies

Students completing the Mature Student Qualifying Programme who wish to proceed to the first undergraduate year are required to apply for admission to their intended area of course specialization in accordance with the prescribed application deadline dates. Application forms are available from the Office of Admissions.

NOTE: For information on regulations, fees, student services, guidance services, etc., see the undergraduate section of this calendar.

Programme Structure

Students will register in one of the following programmes: Pre-Arts (including Fine Arts). Pre-Science, Pre-Commerce, Pre-Engineering. Programmes will consist of required courses and electives. Requirements of the various programmes are as follows (where specific courses are listed, titles will be found below):

1. Pre-Arts (including Fine Arts)

General requirements:

Six credits in English (language or literature) and thirty credits, not more than eighteen of which may be taken outside the Faculty of Arts.

Specific requirements for programmes in Arts

- a. Anthropology, Applied Social Science, Geography, Sociology, Urban Studies: six credits in Mathematics.

NOTE: It is strongly recommended that students planning to specialize in Economics take Mathematics 103 and 105*.*

- b. Art: twelve credits in studio work, six credits in Art History, and six additional credits in Cinema. Music or Theatre Arts.
- c. Cinema, English, French, Theatre Arts: six credits in English Literature (in addition to the general requirement) and six credits in French.
- d. German, Greek, Hebrew, Italian, Latin, Russian, Spanish: At least, six and preferably twelve credits in the language(s) to be studied.
- e. Canadian Studies, Education, History. Humanities of Science, Philosophy, Russian Studies, Religion: no special requirements, but students should consult with the appropriate department chairman or programme coordinator.
- f. Psychology: Mathematics 102*, 103*, 105*, 107*, Biology 101*; Psychology 111.

2. Pre-Science

Mathematics 102*, 103*, 104*, 105*, Biology 101*; Chemistry 101*, 102*; Physics 101*, 102*, 103*, 3 elective credits.

Mathematics 101* is required of those not having high school intermediate mathematics (functions).

Where taken, this course will count towards the elective credits. Computer Science 111* is recommended as an elective.

3. Pre-Engineering

As for Pre-Science, but replacing Biology 101* with Computer Science 111*.

4. Pre-Commerce

-Mathematics 102* and 103*

-6 credits in English (language or literature)

-6 credits in Humanities or Social Science

-an additional 18 credits selected from any Faculty

-Candidates entering Pre-Commerce without high school intermediate mathematics (functions) must also take Mathematics 101*, which course

will apply as a 3-credit elective.

Pre-Commerce students are advised to select Economics 109* and 110* as electives.

5. Pre-Computer Science

The requirements for the General Science and Electronics/Systems Options shall be the same as those for Pre-Engineering. For the General Business Option they shall comprise:

Mathematics 102*, 103*, 104*, 105* and 106*. Computer Science 111*.

Eighteen elective credits.

Mature Entry Plan (25 and over)

There is a special Mature Entry Plan for students who become at least 25 years of age within the calendar year in which they enter the university.

Pre-Arts or Pre-Commerce:

Persons entering Pre-Arts or Pre-Commerce are able to qualify for admission to the undergraduate programme upon successfully completing the following (18 credits) course profile selected from the Mature Student Qualifying Programme

Arts:

- 6 credits in English (Composition or Literature)
- 12 credits selected from any Faculty.

Commerce:

- Mathematics 102 and 103.
- 12 credits selected from any Faculty.
- Candidates entering Pre-Commerce without high school intermediate mathematics (functions) must also take Mathematics 101*, which course will apply as a 3-credit elective. Pre-Commerce students are advised to elect Economics 109* and 110* and a course from the Social Sciences to complete the 18 credit profile.

Pre-Science, Pre-Engineering and Pre-Computer Science:

Persons entering Pre-Science, Pre-Engineering and Pre-Computer Science may be permitted to seek exemptions from part or all of these post-secondary programmes on the basis of their knowledge. These programmes are outlined on page 283 of this calendar. In the case of the General Business Option in Computer Science, this involves the Mathematics courses normally required for entry to that programme.

Engineering and Computer Science:

Will offer a special testing programme to establish exemptions.

Science:

Will interview and/or test candidates to determine exemptions.

Courses

Courses worth six credits are given from September to May; courses given from September to December, or from January to May are worth three credits. Both 6 credit and 3 credit courses will normally be offered in the Evening Summer session.

The courses listed below are offered by the respective faculties. Inclusion of a course in this list does not guarantee that it will be given every year.

NOTE: Descriptions for courses with an 'N' number (e.g. N-211) will be found in the undergraduate part of this calendar, under the appropriate departmental heading.

Faculty of Arts

A. Humanities Division

Art

Art 101

Visual Arts Orientation I

A studio course dealing with basic media, fundamental techniques and core concepts in two or three dimensions. Lectures and studio periods. (6 credits)

Art 102

Visual Arts Orientation II

Prerequisite: Art 101. Individual problems in the visual arts. Lectures and studio periods. (6 credits)

Art 132 (N-232)

Introduction to Architecture and Sculpture (6 credits)

Art 140 (N-240)

Introduction to Art History (6 credits)

Art 149 (N-249)

Canadian Sculpture and Architecture (6 credits)

Classics

Classics 121 (N-221)

History of Greece and Rome (6 credits)

Classics 141 (N-241)

Greek Literature in Translation (3 credits)

Classics 142 (N-242)

Latin Literature in Translation (3 credits)

English

English 100

English Language

A course for students who first language is other than English and who require additional training in order to achieve a level of expression acceptable to the university. The focus of the course is primarily on the development and improvement of writing skills. (6 credits)

English 101 (N-201)

English Language and Composition (6 credits)

English 111

The Communication of Ideas

A course in language skills and research techniques for the student who has reasonable control of his writing. The approach will be from the point of view of the writer who seeks a desired response from the audience to whom he addresses himself and of the researcher who must prepare a written account of his work for business or academic purposes. (6 credits)

English 121 (N-221)

Introduction to English Literature

A course in the development of English Literature from Chaucer to the present. (6 credits)

NOTE: Students who plan to take a major or honours programme in English are strongly urged to take English 121.

English 131

Basic Language Skills

A course in English Composition for students who have problems of expression in written and spoken English. Emphasis will be placed on grammar, sentence structure and other fundamentals of good usage. (3 credits)

English 132

Writing Themes about Literature

A course in the exploration of the meaning, structure, style, and background influences of literary works, with the aim of teaching students to write unified and well organized analyses on specific elements in those works. (3 credits)

English 133

The Novel and the Short Story

Selections for study will be grouped around some major theme or idea of particular relevance to the world of today. Specific themes and reading lists will be chosen by individual instructors. (3 credits)

English 134

Drama and Poetry

Selections for study will be grouped around some central theme of particular relevance to life in the present age. Specific themes and reading lists will be chosen by individual instructors. (3 credits)

English 161 (N-231)

Introduction to Poetry (3 credits)

English 166 (N-232)

The Short Story (3 credits)

French

French 101 (N-201)

Beginners' French (6 credits)

French 111 (N-211)

Introduction to College French

Prerequisite: French 101 or equivalent. (6 credits)

French 114 (N-214)

French Language and Composition

Prerequisite: French 111 or equivalent. (6 credits)

French 121 (N-321)

Introduction to French Literature

Prerequisite: French 114 or equivalent. (6 credits)

French 122 (N-222)

Modern French Literature

Prerequisite: French 111 or equivalent. (6 credits)

French 131 (N-331)

French Canadian Literature and Culture

Prerequisite: French 111 or equivalent. (6 credits)

German

German 110 (N-210)

Introductory Course in German (6 credits)

German 111 (N-311)

Advanced German Language and Stylistics

Prerequisite: German 141 or equivalent.
(6 credits)

German 115 (N-215)

German for Reading Knowledge (6 credits)

German 141 (N-241)

German Language and Literature

Prerequisite: German 110 or equivalent.
(6 credits)

Greek

Greek 110 (N-210)

Introductory Course in Greek (6 credits)

Greek 141 (N-241)

Greek Language and Literature

Prerequisite: Greek 110. (6 credits)

Hebrew

Hebrew 110 (N-210)

Introductory Course in Hebrew (6 credits)

Hebrew 115 (N-215)

Biblical Hebrew (6 credits)

Hebrew 141 (N-241)

Intermediate Course in Hebrew

Prerequisite: Hebrew 110, or two years of high school Hebrew or equivalent. (6 credits)

Humanities

Humanities 110

General Course in Humanities

It is the purpose of this course to enlarge and enrich the student's comprehension of his cultural heritage by the study of man as a unique creative being. The sources for this study of man are drawn primarily from the fields of history, philosophy, religion, literature and the arts with a view toward examining those experiences and ideas of enduring power which have shaped the nature of modern man from the age of Greece to the present century. (6 credits)

Interdisciplinary Studies (formerly *Humanities of Science*)

Interdisciplinary Studies 101 (N-201)

Introduction to Science and Human Affairs I
(3 credits)

Interdisciplinary Studies 102 (N-202)

Introduction to Science and Human Affairs II
(3 credits)

Interdisciplinary Studies 110

Contemporary Image of Science I:

The Physical Sciences

This course provides a general humanistic understanding of the physical sciences. The three main themes are man and the universe; the reality and unreality of matter and energy; man and the dynamic earth. (6 credits)

NOTE: Students who have credits for Natural Science 210 or Humanities of Science 010 or 210 may not take this course for credits.

Interdisciplinary Studies 112

Contemporary Image of Science II:

The Biological Sciences

This course provides a general humanistic understanding of the biological sciences. The three main themes are biology and evolutionary theory; evolution of life and man; man, ecology and society. (6 credits)

NOTE: Students who have credits for Natural Science 210 or Humanities of Science 010 or 210 may not take this course for credits.

Interdisciplinary Studies 121 (N-221)

Environmental Issues I (3 credits)

Interdisciplinary Studies 122 (N-222)

Environmental Issues II (3 credits)

Italian

Italian 110 (N-210)

Introductory Course in Italian (6 credits)

Italian 121 (N-221)

Italian Civilization

Prerequisite: Italian 141, or equivalent, or permission of the Department. (6 credits)

Italian 141 (N-241)

Intermediate Italian

Prerequisite: Italian 110, or two years of high school Italian, or equivalent. (6 credits)

Latin

Latin 110 (N-210)

Beginners' Latin (6 credits)

Latin 140 (N-240)

Latin Composition and Translation (6 credits)

Latin 141 (N-341)

Latin Literature

Prerequisite: Latin 140. (6 credits)

Linguistics

Linguistics 121 (N-221)

Introduction to Linguistics (6 credits)

Literature in Translation 150 (N-350)

Literature in Translation (6 credits)

Moving Pictures

Moving Pictures 111 (N-211), (Cinema 257)

History of Film (6 credits)

Music

Music 135 (N-235)

Materials, Structure and Media

Prerequisite: Permission of the instructor.
(6 credits)

Music 145 (N-245)

Music History and Society (6 credits)

Philosophy

Philosophy 110 (N-210)

Problems of Philosophy (6 credits)

Philosophy III (N-211)

Philosophical Classics (6 credits)

Philosophy 121 (N-221)

Introduction to Logic and Philosophy of Science
(6 credits)

Philosophy 131 (N-231)

Introduction to Ethics (6 credits)

Philosophy 171 (N-271)

Contemporary Philosophy (6 credits)

Philosophy 173 (N-273)

Existentialism (6 credits)

Religion

Religion III (N-211)

Understanding Religion (6 credits)

Religion 113 (N-213)

The Religions of the World (6 credits)

Religion 129 (N-329)

Sefardic Judaism (3 credits)

Religion 130 (N-331)

Contemporary Ethical Issues: Personal (3 credits)

Religion 131 (N-231)

Religion, Ethics and Society (6 credits)

Religion 132 (N-332)

Contemporary Ethical Issues: Societal
(3 credits)

Religion 133 (N-333)

Women and Religion I (3 credits)

Religion 134 (N-334)

Women and Religion II (3 credits)

Religion 140 (N-341)

Religion and Literature (6 credits)

Religion 151 (N-301)

Biblical Studies I: The Hebrew Bible
(3 credits)

Religion 152 (N-302)

Biblical Studies II: The New Testament
(3 credits)

Russian

Russian 110 (N-210)

Introductory Course in Russian (6 credits)

Russian 115 (N-215)

Reading Course in Russian (6 credits)

Russian 131 (N-311)

Advanced Russian Language and Stylistics
Prerequisite: Russian 141 or equivalent.
(6 credits)

Russian 141 (N-241)

Intermediate Russian

Prerequisite: Russian 110 or equivalent.
(6 credits)

Spanish

Spanish 101 (N-201)
Introduction to Spanish I (3 credits)

Spanish 102 (N-202)
Introduction to Spanish II (3 credits)

Spanish 121 (N-221)
Spanish Civilization
 Prerequisite: Spanish 141 or equivalent.
 (6 credits)

Spanish 141 (N-241)
Spanish Language and Literature
 Prerequisite: Spanish 110 or equivalent.
 (6 credits)

Spanish 122 (N-222)
II Ideario Hispanoamericano

B. Social Sciences Division

Anthropology

Anthropology III (N-211)
Introduction to Anthropology (6 credits)

Economics

Economics 109 (N-209)
Introduction to Microeconomics (3 credits)

NOTE: Students who have credits for Economics III (N-211) may not take this course for credits.

Economics 110 (N-210)
Introduction to Macroeconomics (3 credits)

NOTE: Students who have credits for Economics III (N-211) may not take this course for credits.

Economics 112 (N-212)
Introductory Economics
 Prerequisites: Mathematics 101 and 102 or equivalent. (6 credits)

Economics 130 (N-330)
Introduction to Economic History (6 credits)

Geography

Geography 101
The Ecology of Man
 A general introduction to the relationship between physical and cultural distributions of the earth's surface. Global pattern of human economic and natural resources will be examined. (6 credits)

Geography III (N-211)
Introduction to Human Geography (6 credits)

Geography 160 (N-260)
Introduction to Cartography II (3 credits)

Geography 161 (N-261)
Introduction to Cartography II (3 credits)

Geography 171 (N-271)
Introduction to Physical Geography (6 credits)

History

History 110 (N-210)
History of Europe in the Modern World
(6 credits)

History 121 (N-221)
History of Canada since 1534 (6 credits)

History 151 (N-251)
History of the United States (6 credits)

History 161 (N-261)
Historical and Cultural Background of Modern Asia (6 credits)

Political Science

Political Science 130 (N-330)
Government and Politics of Canada (6 credits)

Political Science 131 (N-231)
Public Law (6 credits)

Political Science 140 (N-240)
Comparative Politics (6 credits)

Political Science 170 (N-270)
International Relations (6 credits)

Psychology

Psychology III (N-211)

Introductory Psychology (6 credits)

Social Science

Social Science 101

Mass Media and Society

This course will study the history and contemporary communication systems and their effect on society. The press and broadcasting will be explored and emphasis will be placed on news reporting, propaganda, etc. The course consists of televised lectures, reading assignments, and class discussions. (3 credits)

Social Science 102

Public Communications in Canada

This course will study the history and development of Canadian broadcasting and the part it has played in the growth of the nation. Televised lectures, reading assignments and class discussions. (3 credits)

Social Science 110

General Course in the Social Sciences

This course has a dual purpose: to introduce the student to some of the basic concepts and subject matter of the various social sciences and to demonstrate their interrelation; and to provide the student with some knowledge of contemporary society and the social problems which confront it. (6 credits)

Sociology

Sociology III

Introduction to Sociology

Folkways, mores, roles, status, institutions, and culture are the chief concepts discussed. Personality formation, personal disorganization and social change also are dealt with, as are theory, past and current research and historical background. (6 credits)

Faculty of Science

Biology

Biology 101

General Biology I

A survey of the general principles of biology; chemical basis of life, cell organization and control, elements of anatomy, physiology, morphogenesis, heredity and evolution. Lectures and laboratories. (3 credits)

Biology 102

General Biology II

Prerequisite: Biology 101. Cell biology, elementary biochemistry, developmental biology, physiology and genetics. Lectures and laboratories. (3 credits)

Chemistry

Chemistry 101

General Chemistry I

States of matter. Atoms, elements and isotopes; atomic structures. The electronic structure of atoms. The Periodic Table and chemical bonding. Ions in solution. Lectures, tutorials and laboratories. (3 credits)

Chemistry 102

General Chemistry II

Covalent compounds. Chemical reactions; mechanism and kinetics. Special topics; oriented either to the biological sciences, biochemistry and chemistry, or to the physical sciences, engineering and computer sciences. Lectures, tutorials and laboratories. (3 credits)

Geology

Geology 113 (N-213)

Introductory Geology I: Earth Materials

(3 credits)

Geology 114 (N-214)

Introductory Geology II: Earth Processes

(3 credits)

Geology 131 (N-231)

Mineralogy (3 credits)

Mathematics

General Prerequisite and Equivalents:

The general prerequisite for all Mature Student Qualifying Programme Mathematics courses is Mathematics 101*. Students will be exempt from this course with high school papers in:

a) Algebra, Geometry, Trigonometry, Intermediate Algebra; or

b) Algebra, Geometry, Functions.

Students with good grades in Algebra, Geometry, Trigonometry may apply to the Mathematics Department for exemption.

Mathematics 100

Fundamental Concepts of Algebra

This is a course designed for mature students who need a modern background for Mathematics 101*. Sets, axiomatics, algebraic techniques, inequalities, analytic geometry of lines, circles, parabolas. (3 credits)

Mathematics 101

Elementary Functions

Sets. Field of real numbers. Inequalities. Functions and graphs. Trigonometric, exponential and logarithmic functions. (3 credits)

Mathematics 102

College Algebra

Pre-or Co-requisite: Mathematics 101 or equivalent. (See "general prerequisite" above.) Proofs and implications. The natural numbers and the integers. Mathematical induction. Divisibility, the Euclidean Algorithm, primes, the Fundamental Theorem of Arithmetic. Sequences and progressions. Complex Numbers, polynomials, the Fundamental Theorem of Algebra. Combinatorial Mathematics, the Binomial Theorem. Systems of equations, determinants, Cramers' Rule (3 credits)

Mathematics 103

Differential and Integral Calculus I

Prerequisite: Mathematics 101 or equivalent. (See "general prerequisite" above.) Functional notation. Limits and continuity. Differentiation of polynomials. The power, product, quotient and chain rules. Implicit differentiation. Higher derivatives. Mean Value Theorem, Rolles' Theorem, Maxima and minima. Applications: tangents to plane curves, related rates. The differential, use in finding approximations. Indefinite and definite integrals, areas and volumes. (3 credits)

Mathematics 104

Vector Analysis and Analytical Geometry

Prerequisite: Mathematics 101 or equivalent. (See "general prerequisite" above.) The Algebra of vectors in two and three dimensional Euclidean vector spaces, Inner and cross

products of vectors. Algebraic and vector equations of curves in the plane and in space. Elementary study of surfaces in space. Curves and surfaces in parametric form. Polar, spherical and cylindrical coordinates. (3 credits)

Mathematics 105

Differential and Integral Calculus II

Prerequisite: Mathematics 103. Differentiation and integration of trigonometric functions. Derivatives of inverse trigonometric functions. Logarithmic functions and exponential functions. Methods of integration by parts, by substitution, by separation into partial fractions. Improper integrals. L'Hopital's theorem. Series: Convergency tests, Maclaurin and Taylor theorems. (3 credits)

Mathematics 106

Linear Algebra for the Social Sciences

Prerequisite: Mathematics 102. Operations on Matrices. Determinants, Cramers' rule. Systems, rank. The inverse matrix. The Gauss Jordan method. Mappings, matrix transformation. Linear transformations. Characteristic value, vectors, Quadratic forms. (3 credits)

Mathematics 107

Statistics for the Social Sciences

Prerequisite: Mathematics 101 or permission of Department (See "general prerequisite" above.) Elementary Probability, permutations and combinations. Binomial and normal distribution. Analysis and organization of Statistical data. Tests of hypotheses. Confidence limits. Introduction into linear regression and correlation. (3 credits)

Mathematics 108

Fundamental Mathematics I

Prerequisite: Mathematics 101 or equivalent. This course is intended primarily for pre-Commerce students. Progressions, compound interest, annuities; permutations, combinations and binomial theorem; systems of linear equations, inequalities, linear programming; matrices. (3 credits)

NOTE: Students with credits for Mathematics 102 or equivalent may not take this course for credits.

Mathematics 109

Fundamental Mathematics II

Prerequisite: Mathematics 101 or equivalent. This course is intended primarily for pre-Commerce students. Limits, differentiation of

rational, exponential and logarithmic functions, theory of maxima and minima, integration. (3 credits)

NOTE: Students with credits for Mathematics 103 or equivalent may not take this course for credits.

Physics

Physics 101

Mechanics I

This course is no longer offered.

It is replaced by Physics 104 and Physics 124

Physics 102

Electricity and Magnetism I

This course is no longer offered.

It is replaced by Physics 105 and Physics 125.

Physics 103

Waves and Modern Physics I

This course is no longer offered.

It is replaced by Physics 106 and Physics 126.

Physics 104

Mechanics

Prerequisite: Mathematics 103 previously or concurrently. Kinematics, Newton's Laws of Motion. Statics, dynamics. Conservation of momentum and energy. Periodic motion. Lectures only. (3 credits)

NOTE: See Physics 124 for laboratory associated with this course.

NOTE: Students with credits in Physics 101 or equivalent may not take this course for credits.

Physics 105

Electricity and Magnetism

Prerequisite: Physics 104. Electrical charge and Coulomb's Law. Electrical field and potential. Capacity. Steady state and transient currents. Electromagnetic induction and alternating currents. Lectures only. (3 credits)

NOTE: See Physics 125 for laboratory associated with this course.

NOTE: Students with credits in Physics 102 or equivalent may not take this course for credits.

Physics 106

Waves and Modern Physics

Prerequisite: Physics 104. Simple harmonic motion. Wave propagation. Superposition. Stationary waves. Doppler effect. Interference. Diffraction. Photoelectric effect. Compton effect. Bohr's atom. Radioactivity, fission, fusion. Lectures only. (3 credits)

NOTE: See Physics 126 for laboratory associated with this course.

NOTE: Students with credits for Physics 103 or equivalent may not take this course for credits.

Physics 110

Discoveries in Physics

A non-mathematical course in physics specifically designed for students who have had little or no experience in physics. It traces the fundamental ideas from which modern physics has emerged and attempts to develop insights into the understanding of natural phenomena. Lectures only. (6 credits)

Physics 124

Introductory Experimental Mechanics

Prerequisite: Physics 104 previously or concurrently or permission of the Department. A laboratory course covering fundamental experiments in classical mechanics. Experiments will include resolution of forces, centrifugal force and conservation of energy, pendulums. Laboratory only, 10 experiments. (1 credit)

NOTE: Students who have credits in Physics 101 or equivalent may not take this course for credit.

Physics 125

Introductory Experimental Electricity

Prerequisite: Physics 105 previously or concurrently or permission of the Department. A laboratory course covering fundamental experiments in electricity. Experiments will include Kirchhoff's Law, resistors in series and parallel, oscilloscopes, induction, AC. Laboratory only, 10 experiments. (1 credit)

NOTE: Students with credits in Physics 102 or equivalent may not take this course for credit.

Physics 126

Introductory Experimental Waves and Modern Physics

Prerequisite: Physics 106 previously or concurrently or permission of the Department. A laboratory course covering the fundamental experiments in waves and modern physics.

Experiments include spectrometer measurements, Newton's rings and measurements involving radioactivity. Laboratory only, 10 experiments. (1 credit)

NOTE: Students with credits in Physics 103 or equivalent may not take this course for credit.

Faculty of Commerce & Administration

Administration

Administration 101

Introduction to Administration

This course is designed to develop a basic understanding of the role of administration in our society (the efficient organization and employment of people in the techno-structure). (3 credits)

Administration 102

Perspective on Business

This course is designed to review the historical development of business (in Canada in particular) and to examine the relationships between the firm (management) and the owners, the employees, the customers, the government and the community. Further, to study some of the problems facing Canadian business today: the dehumanizing aspect, pollution problems, large vs. small firms, foreign ownership, competition, etc. (3 credits)

Faculty of Engineering

Computer Science

Computer Science III (211)

Introduction to Digital Computer Programming
(3 credits)

Independent (Partial) Course Students

Where places are available, after regularly admitted students have been registered, individuals may register on an individual course basis as independent students in courses for which they have the qualifications. Registration dates will be published in the daily press in the month of August.

Sir George Williams High School

Applicants to the Mature Student Qualifying Programme who wish to correct deficiencies in certain disciplines in which they did not matriculate from high school, (for example, Elementary Mathematics), should register for courses in the Sir George Williams Evening High School. Inquiries concerning the High School should be directed to the Headmaster, Sir George Williams High School, 1435 Drummond Street, Montreal, Quebec.

Continuing Education Division

Continuing Education Division

*Assistant Vice-Rector, Academic;
Continuing Education Division
Director for Continuing Education
in Business and Administration
Coordinator of Teacher Training and
Certification
Coordinator of Continuing Education Music
Programmes*

James R. McBride

Kenneth C. Etheridge

John W. Fiset

To Be Appointed

Continuing Education
2140 Bishop
Montreal, Quebec
H3G 1M8
Tel: 879-2865

General Information

The university has introduced a new departure in university level programmes under the general heading of Continuing Education. Continuing Education is currently developing and administering courses which fall under one of two general categories: university credit programmes and non-credit programmes.

Some of the credit courses offered by Continuing Education have not appeared in previous calendars because they were not approved prior to the deadline for calendar submissions. A list of these courses from previous years may be found beginning on page 299 of this calendar.

Off-Campus University Credit Programmes

University credit courses are offered off-campus during the winter and summer sessions. Students who take their courses through Continuing Education will receive their credits according to the regular university programmes in which they are enrolled.

Admission

Admission to credit work through Continuing Education is the same as for regular admission to the university undergraduate programmes. For details refer to the section on Admission Regulations beginning on page 38. The courses offered through Continuing Education are oriented towards those individuals who wish to improve their qualifications. A specific effort has been made by Sir George Williams University to meet the needs of teachers seeking courses for reclassification as well as those wishing courses for "perfectionnement". (A listing of specific courses and programmes of interest to teachers may be found beginning on page 297 of this calendar.) Continuing Education is prepared to

offer courses from the university programmes wherever there is a sufficient demand, provided qualified lecturers are available.

Individuals interested in establishing off-campus courses in their areas should contact the Coordinator of Teacher Training and Certification of Sir George Williams University at 1455 de Maisonneuve Blvd. West, Montreal, Quebec H3G-1M8.

Non-Credit Programmes

A wide variety of special courses is available through the Continuing Education Division for individuals who are not necessarily interested in following regular graduate or undergraduate programmes. Course offerings are reviewed and supplemented frequently to ensure that they satisfy the changing needs for professional development in the community.

Business and Administration:

These programmes are specifically oriented towards the professional development of those involved in business and industry.

Non-Credit Business Courses:

Programmes are conducted in areas such as office management, purchasing and other special skills.

Small Group Special Interest Courses:

More informal programmes, generally extending over a period of eight weeks and proceeding by the seminar method, are designed to develop a professional skill for a small group in an area of special interest.

Executive Development Seminars:

Highly concentrated programmes, extending over one or two days and offered throughout the

year, to provide the means for business leaders to up-date themselves in areas of vital concern. Such seminars can be made available on a private basis for industries or companies desiring specialized services.

Among new programmes which the Continuing Education Division is developing in the area of business and administration are a series leading to specialist certificates. Certificate programmes already available include the Certificate in Hotel and Catering Administration and the Certificate in Transportation and Traffic.

Continuing Education also offers the following general interest programmes:

Studies in Armenology:

A series of courses designed in conjunction with the Tekeyan Armenian Cultural Association of Montreal.

Complete Computer Electronics:

A self-study course in computer electronics offered in conjunction with the National Radio Institute.

History of Cinema:

Offered in conjunction with the Conservatory of Cinematographic Art.

Music:

A music education programme offered in conjunction with the Montreal Symphony Orchestra, television, radio and recording artists and leading, independent teachers.

The programme provides for flexible scheduling, private, shared or group lessons. A wide range of options makes it possible for students to select whatever special music education or performance course they wish. Both credit and non-credit courses are available.

The above are ongoing programmes offered throughout the year.

Interested applicants should contact the Continuing Education Office for further details. Separate brochures are prepared for the various courses and programmes.

Programmes and Courses of Particular Interest to Teachers

Introduction

Included in this section is a list of courses and programmes which may be of particular interest to teachers and which fall outside the offerings of the Department of Education at Sir George Williams University. Groups interested in the creation of courses, certificate or diploma programmes should contact the Coordinator of Teacher Training and Certification in Continuing Education at 879-8400. Continuing Education is prepared to offer courses off-campus from this section wherever there is sufficient demand, provided suitable lecturers are available.

Some of the credit courses offered by Continuing Education have not appeared in previous calendars because they were not approved prior to the deadline for calendar submissions. A list of these courses may be found beginning on Page 299 of this calendar. Teachers who have had problems obtaining scholarship from the Quebec Government for university level courses successfully completed at Sir George Williams University should contact their local Teachers' Association.

1-Individual Courses of Interest to Teachers

English N-237	
Children's Literature (6 credits)	See Page 121
TESL N-231	
Modern English Grammar (3 credits)	See Page 108
TESL N-241	
Language Acquisition (3 credits)	See Page 108
TESL N-351	
History and Development of the English Language (3 credits)	See Page 109
Music N-421	
Music in Education (6 credits)	See Page 134
Art N-251	
Art for Classroom Use (6 credits)	See Page 128
Mathematics N-300	
Number Systems (6 credits)	See Page 220
Mathematics N-301	
Mappings (6 credits)	See Page 220
Theatre Arts N-255	
The Arts of Play Production (6 credits)	See Page 135

Theatre Arts N-331

Creative Drama in the Schools (6 credits)

See Page 136

2-Specific Programmes for the Teaching Sector

a-Certificate Programmes⁽¹⁾

(1) Certificate in the Teaching of English as a Second Language, Elementary Option, Secondary Option (30 credits)

See Page 97

(2) Certificat d'enseignement de l'anglais langue seconde au niveau élémentaire (programme intensif de perfectionnement) (30 credits)

See Page 96

(3) Certificate Education for Practising Teachers (30 credits)

See Page 94

(4) Certificate in the Teaching of Elementary School Mathematics* (30 credits)

Contact Continuing Education 879-8400.

b-Diploma Programmes⁽²⁾

(1) Diploma in Early Childhood Education (30 credits)

See Diploma Programmes Graduate Calendar

(2) Diploma in Instructional Technology (30 credits)

See Diploma Programmes Graduate Calendar

(3) Diploma in Institutional Administration (30 credits)

See Diploma Programmes Graduate Calendar

c-Master's Degree Programmes

(1) Master in the Teaching of Mathematics (M.T.M.) (45 credits)

See Graduate Programmes Graduate Calendar

(1) A Certificate programme is one in which the courses offered are at the Bachelor's level.

(2) A Diploma programme is one in which the courses offered are at a level between the Bachelor's and Master's degree.

* This programme is subject to approval by the University Senate.

- (2) Master of Science in Chemistry
(Teaching Option) (45 credits)

See Graduate Programmes
Graduate Calendar

- (3) Master of Arts in Art Education (45 credits)

See Graduate Programmes
Graduate Calendar

- (4) Master of Arts in Educational Studies
(45 credits)

See Graduate Programmes
Graduate Calendar

- (5) Master of Arts in Educational Technology
(90 credits)

See Graduate Programmes
Graduate Calendar

- (6) Master of Arts in Philosophy
(course 698 deals with Teaching of
Philosophy) (45 credits)

See Graduate Programmes
Graduate Calendar

Special Day Summer Session Course Offerings 1964-1973

The courses listed below are university level credit courses which have been offered from time to time on and off-campus since 1964. Some of these courses have not previously appeared in any of the Sir George Williams University Calendars; however, they have been included in special information brochures.

For complete details on course content please write the Registrar to obtain a copy of the Addendum to the undergraduate calendar.

Anthropology

1967

Anthropology 211

Introduction to Anthropology (full course)

Education

1969

Education 212

The Nature and Function of Teaching (full course)

Education 411

Philosophy of Education (full course)

Education 431

History of Educational Ideas (full course)

Sociology 448

Sociology of Education (full course)

1970

Education 212

The Nature and Function of Teaching
(full course)

Education 213

Basic Psychological Processes (full course)

Education 214

Statistical Method in Psychology and Education
(full course)

Education 411

Philosophy of Education (full course)

Education 414

Education and Aesthetics (half course)

Education 416

Education and Moral Development (full course)

Education 421

Sociology of Education (full course)

Education 422

Education in Canada (half course)

Education 431

History of Educational Ideas (full course)

Education 442

Education of the Culturally Disadvantaged Child
(half course)

Education 451

Comparative and International Education
(full course)

Education 452

Early Childhood Education (full course)

Education 455

Education of the Gifted Child (half course)

Education 459

Adult Education (half course)

Education 492

Research Methods for Educational Change
(half course)

1971

Education 212

The Nature and Function of Teaching
(full course)

Education 214

Statistical Method in Education (half course)

Education 403

Education and the New Media (half course)

Education 411

Philosophy of Education (full course)

Education 413

Major Themes in Educational Psychology
(full course)

Education 415

Education of the Slow Learning Child
(half course)

Education 421

Sociology of Education (full course)

Education 422

Education in Canada: The Education of Native Peoples (half course)

Education 442

Education of the Culturally Disadvantaged Child
(half course)

Education 451

Comparative and International Education
(full course)

Education 452

Early Childhood Education (full course)

Education 453

Education in Quebec (half course)

Education 455

Education of the Gifted Child (half course)

Education 459

Adult Education (half course)

Education 463

Education and the New Media (half course)
Students who have credit for Education 403 will register under 463.

Education 492

Research Methods for Educational Change
(half course)

1972

Education N-201 (212)

The Nature and Function of Teaching (full course)

Education N-214 (214)

Statistical Method in Education (full course)

Education N-403 (403)

Education and the New Media: Topic: Media and the Young Child (full course)

Education N-413 (413)

Major Themes in Educational Psychology: Problems in Child Development (full course)

Education N-415 (415)

Education of the Slow Learning Child (half course)

Education N-416 (455)

Education of the Gifted Child (half course)

Education N-417 (442)

Education of the Culturally Disadvantaged Child
(half course)

Education N-421 (421)

Sociology of Education (full course)

Education N-430 (411)

Philosophy of Education (full course)

Education N-436 (416)

Education and Moral Development (full course)

Education N-441 (431)

History of Educational Ideas (full course)

Education N-453 (453)

Education in Quebec (half course)

Education N-459 (459)

Adult Education: Topic: The Modern Adult and his Education (half course)

Education N-460 (460)

Adult Education (half course)

Students who have credit for Education N-459 (459) will register under N-460 (460).

Education N-461 (452)

Early Childhood Education (full course)

Education N-463 (463)

Education and the New Media (full course)
Students who have credit for Education N-403 (403) will register under N-463 (463).

1973

Education N-413 (413)

Major Themes in Educational Psychology: Problems in Child Development (full course)

Education N-499 (499)

Current Issues in Education. Special Topic: Schools and their Critics. (half course)

English

1967

English 436

Victorian Literature (full course)

English 437

Modern British and American Literature
(full course)

English 444

Canadian Poetry and its Critics (full course)

English 445

American Literature (full course)

English 469

Literature and Society (full course)

English 472

Advanced Seminar in a Special Subject: Tennyson and Browning (full course)

1968

English 435

Literature of the Romantic Period (full course)

English 454

Chaucer and his Contemporaries (full course)

English 461

Modern Poetry (full course)

English 463

The English Novel (full course)

English 467

Poetic and Critical Theory (half course)

English 472

Advanced Seminar in a Special Subject: James Joyce and Dylan Thomas (full course)

1969

English 431

Literary and Life Styles in the Seventeenth Century (full course)

English 434

Ideas of Art and Order in the Augustan Age (full course)

English 437

Modern British and American Literature (full course)

English 444

Canadian Poetry and its Critics (full course)

English 454

Background to Chaucer (full course)

English 462

Modern Drama: The Opposition of Theatre and Drama (half course)

English 469

Elizabethan Drama: The Opposition of Theatre and Drama (half course)

(This course was previously offered as a full credit in Summer 1967.)

1970

English 434

Literature in Context: 1730-1790 (full course)

English 446

Contemporary Continental Literature (full course)

English 453

Shakespeare (Advanced): Shakespeare's Comedies (full course)

English 468

English Tragedy: Marlowe to Middleton (full course)

English 472

Advanced Seminar in a Special Subject

Section A: James Joyce and the Dilemma of Man (full course)

Section B: Psychology and Literature (full course)

1971

English 431

The Poetry of the Metaphysicals: 1600-1642 (full course)

English 446

Metamorphosis in Literature (full course)

English 454

Contemporaries of Chaucer (full course)

English 455

Spenser (full course)

English 472

Advanced Seminar in a Special Subject: Comedy (full course)

1972

English N-444 (444)

Modern Canadian Writing: Methods, Problems, and Resources (full course)

English N-461 (461)

Modern Poetry: Yeats, Eliot, and Crane (full course)

English N-469 (469)

Literature and the Media (full course)

English N-492 (492)

Advanced Seminar in a Special Subject

Section A: Children's Literature (full course)

Section B: Language and Poetry (full course)

English N-493 (493)

Advanced Seminar in a Special Subject (full course)

Students who have credit for English N-492

(492) will register under N-493 (493).

1973

English N-453 (453)

Special Studies in Shakespeare: Tragic Experience in Shakespeare. (full course)

NOTE: This course is offered regularly as a half-credit course, but was offered as a full-credit course in the Summer 1973 only.

English N-448 (448)

The Canadian Novel: 1920-1970 (full course)

NOTE: This course is offered regularly as a half-credit course, but was offered as a full-credit course in the Summer 1973 only.

French

1967

French 211

Introduction to College French (full course)

French 214

Intermediate College French (full course)

French 231

French Canadian Literature and Culture
(full course)

French 411

Advanced Composition and Stylistics (full course)

French 425

French Literature of the Twentieth Century
(full course)

1968

French 211

Introduction to College French (full course)

French 214

Intermediate College French (full course)

French 221

Introduction to French Literature (full course)

French 411

Advanced Composition and Stylistics (full course)

French 426

Literature of the Romantic and Realist Periods
(full course)

French 461

The French Cinema (full course)

1969

French 211

Introduction to College French (full course)

French 214

Intermediate College French (full course)

French 231

French Canadian Literature and Culture
(full course)

French 411

Advanced Composition and Introduction to Stylistics (full course)

French 412

History of the French Language (full course)

French 422

French Literature of the Seventeenth Century
(full course)

French 461

The French Cinema (full course)

1970

French 211

Introduction to College French (full course)

French 214

Intermediate College French (full course)

French 221

Introduction to French Literature (full course)

French 411

Advanced Composition and Introduction to Stylistics (full course)

French 412

History of the French Language (full course)

French 423

French Literature of the Eighteenth Century
(full course)

French 425

French Literature of the Twentieth Century
(full course)

1971

French 211

Introduction to College French (full course)

French 214

Intermediate College French (full course)

French 411

Advanced Composition and Introduction to Stylistics (full course)

French 414

Comparative Stylistics and Translation (full course)

French 422

French Literature of the Seventeenth Century
(full course)

French 425
French Literature of the Twentieth Century
 (full course)

French 428
Literature of the Romantic Period (half course)

French 429
The Nineteenth Century Novel (half course)

1972
 French N-211 (211)
Introduction to College French (full course)

French N-214 (214)
Intermediate College French (full course)

French N-310 (411)
Advanced Composition and Introduction to Stylistics (full course)

French N-312 (412)
History of the French Language (full course)

French N-417 (417)
Structural Linguistics of Contemporary French
 (full course)

French N-421 (421)
French Literature of the Sixteenth Century
 (full course)

French N-428 (428)
Literature of the Romantic Period (half course)

French N-429 (429)
The Nineteenth Century Novel (half course)

Geography

1964
 Geography 211
Introduction to Human Geography (full course)

Geography 251
Economic Geography (full course)

Geography 411
Historical and Political Geography of Europe
 (full course)

Geography 412
World Political Geography (full course)

Geography 421
Historical and Political Geography of the United States (full course)

Geography 431
Urban Geography (full course)

Geography 432
World Frontiers of Settlement (half course)

Geography 433
Canadian Frontiers of Settlement (half course)

Geography 441
Geography of Canada, Past and Present (full course)

1965
 Geography 211
Introduction to Human Geography (full course)

Geography 251
Economic Geography (full course)

Geography 261
General Cartography (full course)

Geography 412
World Political Geography (full course)

Geography 421
Historical and Political Geography of the United States (full course)

Geography 431
Urban Geography (full course)

Geography 441
Geography of Canada, Past and Present
 (full course)

Geography 451
Prehistoric Geography of Europe and the Mediterranean (full course)

1966
 Geography 211
Introduction to Human Geography (full course)

Geography 251
Economic Geography (full course)

Geography 411
Historical and Political Geography of Europe
 (full course)

Geography 412
World Political Geography (full course)

Geography 421
Historical and Political Geography of the United States (full course)

Geography 431
Urban Geography (full course)

Geography 432
World Frontiers of Settlement (half course)

Geography 433
Canadian Frontiers of Settlement (half course)

Geography 441
Geography of Canada, Past and Present
(full course)

1967
Geography 211
Introduction to Human Geography (full course)

Geography 251
Economic Geography (full course)

Geography 261
General Cartography (full course)

Geography 411
Historical and Political Geography of Europe
(full course)

Geography 421
Historical and Political Geography of the United States (full course)

Geography 431
Urban Geography (full course)

Geography 441
Geography of Canada, Past and Present (full course)

Geography 443
Geography of the U.S.S.R. (full course)

Geography 444
Polar Lands (full course)

1968
Geography 211
Introduction to Human Geography (full course)

Geography 231
Introduction to Physical Geography (full course)

Geography 251
Economic Geography (full course)

Geography 261
General Cartography (full course)

Geography 421
Historical and Political Geography of the United States (full course)

Geography 431
Urban Geography (full course)

Geography 443
Geography of the U.S.S.R. (full course)

Geography 445
Study of a Selected Region (full course)

Geography 457
Resource Utilization and Conservation
(full course)

1969
Geography 211
Introduction to Human Geography (full course)

Geography 261
Introduction to Cartography (full course)

Geography 411
Historical and Political Geography of Europe
(full course)

Geography 431
Urban Geography (full course)

Geography 441
Geography of Canada, Past and Present
(full course)

Geography 445
Study of a Selected Region (full course)

Geography 456
Geography of Manufacture (full course)

Geography 457
Resource Utilization and Conservation (full course)

1970
Geography 211
Introduction to Human Geography
(full course)

Geography 231
Introduction to Physical Geography (full course)

Geography 261
Introduction to Cartography (full course)

Geography 416
Human Geography (full course)

Geography 431

Urban Geography (full course)

Geography 445

Study of a Selected Region (full course)

Geography 457

Resource Utilization and Conservation
(full course)

1971

Geography 431

Urban Geography (full course)

Geography 434

Applied Urban Geography (full course)

Geography 457

Resource Utilization and Conservation
(full course)

Geography 460

Geography of Transportation (full course)

1972

Geography N-316 (416)

Human Geography (full course)

Geography N-345 (445)

Study of a Selected Region: Geography of South Asia (full course)

Geography N-358 (438)

Geography and Economic Development
(full course)

1973

Geography N-335 (435)

Land Use and Rural Settlement (full course)

Geography N-339 (439)

Geography of Poverty (full course)

Geography N-345 (455)

The Geography of Middle America (full course)

History

1966

History 434

The Social History of Modern Britain
(full course)

History 492

The Historical Development of Social Change in Africa (full course)

1967

History 426

History of Quebec: 1759-1965 (full course)

History 493

Sociology and History: Collective Political Actions (full course)

History 494

The Rise of Industrial Society in America
(full course)

History 495

American Urban History (half course)

1968

History 473

Advanced Study in a Special Subject

Section A: Social History of the Canadas to 1850 (full course)

Section B: The Transition from Pre-Industrial to Industrial Society in the United States, 1843-1893 (full course)

History 475

Advanced Study in a Special Subject (full course)

Students who have credit for History 473 will register under History 475.

History-Sociology 493

History and Sociology: The Growth of Bureaucracy in Modern Capitalist and Socialist Societies
(full course)

1969

History 446

Education and Society (full course)

History 447

Material Foundations of European Civilization, 1500-1800 (full course)

History 459

The American Nation Takes Shape (full course)

History 463

Popular Rebellion in Modern China (full course)

1970

History 221

History of Canada since 1534 (full course)

History 417

Modernization of European Society, 1750 to the Present (full course)

History 427

War and Canadian Civil Society (full course)

History 455

Foreign Relations of the United States (full course)

History 464

Nationalism and Communism in Modern China

(full course)

1971

History 221

History of Canada since 1534 (full course)

History 428

Nationalism and Separatism in French Canada

(full course)

History 438

The Making of Modern Britain 1780-1960

(full course)

History 459

Studies in American Social and Intellectual History

(full course)

History 466

Colonialism and Nationalism in Southeast Asia

(full course)

1972

History N-210 (213)

History of Europe in the Modern World

(full course)

History N-329 (429)

Social and Intellectual History of Canada, 1880-1939 (full course)

History N-338 (438)

The Transformation of England from a Feudal to a Bourgeois Society, 1500-1750 (full course)

History N-339 (419)

A Social History of France, 1775-1850 (full course)

History N-357 (450)

Problems in American Labour History (full course)

History N-369 (465)

Studies in Chinese Social History (full course)

1973

History N-338 (488)

The Urban History of the United States and Canada (full course)

History N-359 (487)

Insurrection and Intervention in Modern Latin America (full course)

Mathematics

1970

Mathematics 401

Functions (full course)

1971

Mathematics N-200

Functions (full course)

Mathematics N-208

Number Systems (full course)

1972

Mathematics N-200

Functions (full course)

Mathematics N-209

Vector Geometry (full course)

Mathematics N-306

Classroom Programmes in Elementary Mathematics (full course)

1973

Mathematics N-308

Classroom Programmes in Elementary Mathematics (full course)

Mathematics N-401

Functions. (full course)

Philosophy

1969

Philosophy 443

Responsibility and States of Mind (full course)

Philosophy 469

From Hegel to Nietzsche (full course)

1970

Philosophy 427

Moral Values and Social Facts (full course)

Philosophy 463

Philosophy of Human Nature (full course)

1971

*Philosophy 466****Philosophies of Man*** (full course)*Philosophy 479****Philosophy of Art*** (full course)*Philosophy 497****Epistemology: Knowing and Perceiving***
(full course)

1972

*Philosophy N-361 (261)****Philosophical Ideas in Literature*** (full course)**Religion**

1971

*Religion 448****Religion, Art, and Literature*** (half course)**Sociology**

1964

*Sociology 424****Sociological Theory*** (full course)*Sociology 431****Medical Sociology*** (full course)*Sociology 432****Religious Institutions*** (full course)*Sociology 445****American Minorities*** (half course)*Sociology 446****Race Relations*** (half course)

1965

*Sociology 424****Sociological Theory*** (full course)*Sociology 431****Medical Sociology*** (full course)*Sociology 433****The Sociology of Deviance*** (full course)*Sociology 441****The Modern Community*** (half course)*Sociology 444****Caste and Class Studies*** (full course)

1966

*Sociology 424****Contemporary Sociological Theory*** (full course)*Sociology 431****Medical Sociology*** (full course)*Sociology 441****The Modern Community*** (half course)*Sociology 442****The Family*** (half course)*Sociology 444****Caste and Class Studies*** (full course)*Sociology 447****Race and Culture*** (full course)

1967

*Sociology 423****Classical Sociological Theory*** (full course)*Sociology 427****Political Sociology*** (full course)*Sociology 433****Sociology of Deviance*** (full course)*Sociology 496****Problems of Urbanization*** (full course)

1968

*Sociology 421****Social Change*** (full course)*Sociology 431****Medical Sociology*** (full course)*Sociology-History 493****History and Sociology: The Growth of Bureaucracy
in Modern Capitalist and Socialist Societies***
(full course)

1969

*Sociology 486****Theories and Sociology of Culture*** (full course)*Sociology 487****The Organization of Lives: A Social-
Psychological Approach*** (full course)

1970

*Sociology 421****Modernization*** (full course)*Sociology 432****Sociology of Religion*** (full course)*Sociology 486****Military Sociology*** (full course)

1971

Sociology 486

Mass Communication (full course)

Sociology 487

Problems of Urbanization (full course)

1972

Sociology N-494 (486)

Studies in Symbolic Interaction (full course)

Sociology N-495 (487)

Comparative Studies in the Process of Urbanization (full course)

1973

Political Science N-405 (405) - Sociology

N-497 (488)

Special Seminar: Socio-Cultural Cleavages and Party Systems in Western Europe (half course)

Political Science N-407 (407)

Inter-American Relations (half course)

Political Science N-417 (417) - Sociology N-494 (486)

Special Seminar: Society and Politics in the Middle East (full course)

Political Science N-449 (449) - Sociology N-495 (487)

Special Seminar: Social Power and Political Process in South Asia (full course)

NOTE: Political Science N-405, N-417 and N-449 may be counted as credits in either Political Science or Sociology.

Teaching English as a Second Language

1969

Applied Linguistics 221 (421)

Teaching Methods (half course)

Applied Linguistics 231 (431)

Grammatical Theory (half course)

Applied Linguistics 241 (441)

Comparative Phonetics (half course)

Applied Linguistics 251 (451)

Growth and Development of the English Language (half course)

1970

Applied Linguistics 221 (421)

Teaching Methods (half course)

Applied Linguistics 231 (431)

Grammatical Theory (half course)

Applied Linguistics 241 (441)

Comparative Phonetics (half course)

Applied Linguistics 251 (451)

Growth and Development of the English Language (half course)

1971

Applied Linguistics 421

Teaching Methods (half course)

Applied Linguistics 431

Grammatical Theory (half course)

Applied Linguistics 441

Comparative Phonetics (half course)

Applied Linguistics 451

Growth and Development of the English Language (half course)

1972

Applied Linguistics N-421 (421)

Teaching Methods (full course)

Applied Linguistics N-431 (431)

Grammatical Theory (half course)

Applied Linguistics N-441 (441)

Comparative Phonetics (half course)

1973

Applied Linguistics N-421 (421)

Teaching Methods (full course)

Applied Linguistics N-431 (431)

Grammatical Theory (half-course)

Applied Linguistics N-441 (441)

Comparative Phonetics (half course)

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